

# Index of Papers Published in AIAA Journal

Volume 4—January through December 1966

Issue	Pages	Issue	Pages
January	1-192	July	1153-1312
February	193-384	August	1313-1504
March	385-576	September	1505-1696
April	577-768	October	1697-1888
May	769-960	November	1889-2080
June	961-1152	December	2081-2272

TN, TC, and SA indicate Technical Note, Technical Comment, and Survey Article, respectively.

## AUTHORS

- Abbott, Michael (see Moretti, Gino)
- Ablow, C. M. (see Parks, Jean M.)
- Abu-Romia, M. M. (see Tien, C. L.)
- Achenbach, J. D. Axial shear vibrations of a cylinder of decreasing thickness ..... 1233
- Adams, Richard H. (see Alpinieri, L. J.)
- Adarkar, D. B. Comment on "Simplified solutions for ablation in a finite slab" (TC) ..... 1495
- and Hartsook, L. B. An integral approach to transient charring ablator problems (TN) ..... 2246
- Adcock, Brian D. Equilibrium properties of argon (TC) ..... 384
- On the stability of an argon plasmajet (TN) ..... 2249
- Agnone, A. (see Martellucci, A.)
- Agosta, Vito D. (see Hammer, Sanford S.)
- Shock wave interaction with a burning solid propellant (TN) ..... 934
- Ahlborn, Boye and Barnard, A. Johannes. Velocity measurement by Doppler effect (TN) ..... 1136
- Aihara, Yasuhiko. Surface distortion of the molten layer in the axisymmetric stagnation region (TN) ..... 2068
- Albacete, Lorenzo M. Boundary layer over a slender parabola of revolution with fluid injection (TN) ..... 2040
- Alford, M. W. and Lear, C. W. A computational method for the optimization of multistage ballistic systems ..... 1668
- Almroth, B. O. Influence of edge conditions on the stability of axially compressed cylindrical shells ..... 134
- (see Stuhlman, C.)
- Alpinieri, L. J. and Adams, Richard H. Flow separation due to jet pluming (TN) ..... 1865
- Anderson, Melvin S. (see Bohon, Herman L.)
- Anderson, William J. Oscillatory pressures in an idealized boundary layer with application to cylinder flutter ..... 865
- Archer, R. D. (see Beaton, R. H.)
- Armstrong, J. F., George, D. W., and Messerie, H. K. Electrode current saturation in MHD ducts (TN) ..... 2061
- Aroesty, Jerome and Davis, Stephen H. Inviscid cone flows with surface mass transfer (TN) ..... 1830
- Aronowitz, L. (see Loeffler, A. L., Jr.)
- Arpa, Vedat S. (see Farn, Charles, L. S.)
- Arthur, Paul D. and Baxter, Bruce E. Approximate atmospheric entry trajectories on a cylindrical planet (TN) ..... 1436
- Ashby, D. E. T. F., Liebing, L., Larson, A. V., and Gooding, T. J. Quasi-steady-state pulsed plasma thrusters ..... 831
- Ault, Robert M. (see Lackman, Leslie M.)
- Avery, W. H. (see Heidelbach, R. G.)
- Azzi, Victor D. (see Tsai, Stephen W.)
- Bach, Gale R. (see Morris, James C.)
- Back, L. H. and Cuffel, R. F. Detection of oblique shocks in a conical nozzle with a circular-arc throat (TN) ..... 2210
- and Massier, P. F. and Cuffel, R. F. Some observations on reduction of turbulent boundary-layer heat transfer in nozzles (TN) ..... 2226
- Baier, A. D. (see Keller, J. A.)
- (see Beckstead, M. W.)
- Baillie, J. A. (see MacNeal, R. H.)
- Baker, E. H. and Herrmann, G. Vibrations of orthotropic cylindrical sandwich shells under initial stress ..... 1063
- Baldwin, Lionel V. (see Kuo, Yung-huang)
- Ball, Henry W. Driver gas detection in a shock tunnel (TN) ..... 1111
- Ball, K. O. W. Comment on "Review of theoretical investigations on effect of heat transfer on laminar separation" (TC) ..... 761
- Ball, R. E. (see Karlsson, T.)
- Barba, P. M. (see Kane, T. R.)
- Barber, Edward A. Some experiments on delta wings in hypersonic flow ..... 72
- Barkan, P. and Whitman, A. M. Stagnation pressure measurement in a current-carrying plasma (TN) ..... 1601
- Barnard, A. Johannes (see Ahlborn, Boye)
- Barnes, John W. and Tang, Homer H. Strong and weak interaction parameters for turbulent flow (TN) ..... 1838
- Baronti, Paolo O. and Libby, Paul A. Velocity profiles in turbulent compressible boundary layers ..... 193
- Barrett, M. J. Some techniques applicable to the shielding of nuclear particles from space ..... 9
- Barzelay, Martin E. Continuum radiation from partially ionized argon ..... 815
- Batchelder, Richard A. Some aids to convergence from crude initial estimates (TN) ..... 1112
- Bateman, Richard E., Benezra, Joseph N., and Placek, Frank J. Lunar satellite orbit determination by a classical binary star method ..... 1287
- Batterman, Steven C. Axisymmetric buckling of a compressed cylindrical shell and an integral relation (TN) ..... 186
- and Lee, Lawrence, H. N. Effect of modes on plastic buckling of compressed cylindrical shells (TC) ..... 2255
- Bauer, Helmut F. Nonlinear mechanical model for the description of propellant sloshing ..... 1662
- Bauer, R. C. An analysis of two-dimensional laminar and turbulent compressible mixing ..... 392
- Baxter, Bruce E. (see Arthur, Paul D.)
- Beaton, R. H., Saiva, G., Archer, R. D., and Bryant, R. A. A. Direct diabatic hydraulic analogy (TN) ..... 2229
- Becker, Herbert and Gerard, George. A failure law for filamentary composites (TN) ..... 2218
- Beckstead, M. W., Ryan, N. W., and Baer, A. D. Nonacoustic instability of composite propellant combustion ..... 1622
- Beer, Ferdinand P. and Ravers, Robert H. Effect of spacewise variations in a random load field on the response of a linear system ..... 1651
- BenDaniel, D. H. and Hurwitz, H., Jr. Acceleration instability of a vapor-liquid metal interface with longitudinal magnetic field ..... 1049
- Benezra, Joseph N. (see Bateman, Richard E.)
- Berkowitz, Harvey M. and Bleich, Hans H. Axial impact of an elastic right conical membrane shell ..... 1378
- Bethel, Howard E. Comments on "Approximate solution of second-order boundary-layer equations" (TC) ..... 1882
- Bethke, George W. (see Miller, David B.)
- Bhattacharjee, A. (see Levine, S. H.)
- Bhattacharya, R. N. Solidification principle for nonuniformly spinning rotors mounted on a moving vehicle (TN) ..... 1118
- Bhutani, O. P. General study of plane steady flows in nonequilibrium magnetogasdynamics (TN) ..... 367
- Bielkowitz, Peter. Ground tracks of earth-period (24-hr) satellites ..... 2190
- Bieniek, M. P., Fan, T. C., and Lackman, L. M. Dynamic stability of cylindrical shells ..... 495
- Bird, G. A. Aerodynamic properties of some simple bodies in the hypersonic transition regime ..... 55
- Birkebak, Richard C. (see Cremers, Clifford J.)
- Blankenship, Victor D. (see Chung, Paul M.)
- and Merritt, David L. A note on experimental and theoretical comparisons of conical shock-shock interactions (TN) ..... 2054
- Bleich, Hans H. (see Berkowitz, Harvey M.)
- Blick, E. F. and Francis, J. E. Spherically blunted cone pressure distributions (TN) ..... 547
- Blum, Robert E. and Fulton, Robert E. A modification of Potters' method for solving eigenvalue problems involving tridiagonal matrices (TN) ..... 2231
- Blumenthal, Jack L., Santy, Myrri J., and Burns, Eugene A. Kinetic studies of high-temperature carbon-silica reactions in charred silica-reinforced phenolic resins ..... 1053
- Bluston, H. S. An experimental study of jet turbulent mixing at subsonic-supersonic speeds (TN) ..... 1137
- Bobco, R. P. Radiation from conical surfaces with nonuniform radioactivity (TN) ..... 544
- Bogdan, Leonard. Measurement of the thermal parameter ( $\rho c k^{1/2}$ ) for clear fused quartz (TN) ..... 1477

# Index of Papers Published in AIAA Journal

Volume 4—January through December 1966

Issue	Pages	Issue	Pages
January	1-192	July	1153-1312
February	193-384	August	1313-1504
March	385-576	September	1505-1696
April	577-768	October	1697-1888
May	769-960	November	1889-2080
June	961-1152	December	2081-2272

TN, TC, and SA indicate Technical Note, Technical Comment, and Survey Article, respectively.

## AUTHORS

- Abbott, Michael (see Moretti, Gino)
- Ablow, C. M. (see Parks, Jean M.)
- Abu-Romia, M. M. (see Tien, C. L.)
- Achenbach, J. D. Axial shear vibrations of a cylinder of decreasing thickness ..... 1233
- Adams, Richard H. (see Alpinieri, L. J.)
- Adarkar, D. B. Comment on "Simplified solutions for ablation in a finite slab" (TC) ..... 1495
- and Hartsook, L. B. An integral approach to transient charring ablator problems (TN) ..... 2246
- Adcock, Brian D. Equilibrium properties of argon (TC) ..... 384
- On the stability of an argon plasmajet (TN) ..... 2249
- Agnone, A. (see Martellucci, A.)
- Agosta, Vito D. (see Hammer, Sanford S.)
- Shock wave interaction with a burning solid propellant (TN) ..... 934
- Ahlborn, Boye and Barnard, A. Johannes. Velocity measurement by Doppler effect (TN) ..... 1136
- Aihara, Yasuhiko. Surface distortion of the molten layer in the axisymmetric stagnation region (TN) ..... 2068
- Albacete, Lorenzo M. Boundary layer over a slender parabola of revolution with fluid injection (TN) ..... 2040
- Alford, M. W. and Lear, C. W. A computational method for the optimization of multistage ballistic systems ..... 1668
- Almroth, B. O. Influence of edge conditions on the stability of axially compressed cylindrical shells ..... 134
- (see Stuhlman, C.)
- Alpinieri, L. J. and Adams, Richard H. Flow separation due to jet pluming (TN) ..... 1865
- Anderson, Melvin S. (see Bohon, Herman L.)
- Anderson, William J. Oscillatory pressures in an idealized boundary layer with application to cylinder flutter ..... 865
- Archer, R. D. (see Beaton, R. H.)
- Armstrong, J. F., George, D. W., and Messerie, H. K. Electrode current saturation in MHD ducts (TN) ..... 2061
- Aroesty, Jerome and Davis, Stephen H. Inviscid cone flows with surface mass transfer (TN) ..... 1830
- Aronowitz, L. (see Loeffler, A. L., Jr.)
- Arpa, Vedat S. (see Farn, Charles, L. S.)
- Arthur, Paul D. and Baxter, Bruce E. Approximate atmospheric entry trajectories on a cylindrical planet (TN) ..... 1436
- Ashby, D. E. T. F., Liebing, L., Larson, A. V., and Gooding, T. J. Quasi-steady-state pulsed plasma thrusters ..... 831
- Ault, Robert M. (see Lackman, Leslie M.)
- Avery, W. H. (see Heidelbach, R. G.)
- Azzi, Victor D. (see Tsai, Stephen W.)
- Bach, Gale R. (see Morris, James C.)
- Back, L. H. and Cuffel, R. F. Detection of oblique shocks in a conical nozzle with a circular-arc throat (TN) ..... 2219
- and Massier, P. F. and Cuffel, R. F. Some observations on reduction of turbulent boundary-layer heat transfer in nozzles (TN) ..... 2226
- Baier, A. D. (see Keller, J. A.)
- (see Beckstead, M. W.)
- Baillie, J. A. (see MacNeal, R. H.)
- Baker, E. H. and Herrmann, G. Vibrations of orthotropic cylindrical sandwich shells under initial stress ..... 1063
- Baldwin, Lionel V. (see Kuo, Yung-huang)
- Ball, Henry W. Driver gas detection in a shock tunnel (TN) ..... 1111
- Ball, K. O. W. Comment on "Review of theoretical investigations on effect of heat transfer on laminar separation" (TC) ..... 761
- Ball, R. E. (see Karlsson, T.)
- Barba, P. M. (see Kane, T. R.)
- Barber, Edward A. Some experiments on delta wings in hypersonic flow ..... 72
- Barkan, P. and Whitman, A. M. Stagnation pressure measurement in a current-carrying plasma (TN) ..... 1601
- Barnard, A. Johannes (see Ahlborn, Boye)
- Barnes, John W. and Tang, Homer H. Strong and weak interaction parameters for turbulent flow (TN) ..... 1838
- Baronti, Paolo O. and Libby, Paul A. Velocity profiles in turbulent compressible boundary layers ..... 193
- Barrett, M. J. Some techniques applicable to the shielding of nuclear particles from space ..... 9
- Barzelay, Martin E. Continuum radiation from partially ionized argon ..... 815
- Batchelder, Richard A. Some aids to convergence from crude initial estimates (TN) ..... 1112
- Bateman, Richard E., Benezra, Joseph N., and Placek, Frank J. Lunar satellite orbit determination by a classical binary star method ..... 1287
- Batterman, Steven C. Axisymmetric buckling of a compressed cylindrical shell and an integral relation (TN) ..... 186
- and Lee, Lawrence, H. N. Effect of modes on plastic buckling of compressed cylindrical shells (TC) ..... 2255
- Bauer, Helmut F. Nonlinear mechanical model for the description of propellant sloshing ..... 1662
- Bauer, R. C. An analysis of two-dimensional laminar and turbulent compressible mixing ..... 392
- Baxter, Bruce E. (see Arthur, Paul D.)
- Beaton, R. H., Saiva, G., Archer, R. D., and Bryant, R. A. A. Direct diabatic hydraulic analogy (TN) ..... 2229
- Becker, Herbert and Gerard, George. A failure law for filamentary composites (TN) ..... 2218
- Beckstead, M. W., Ryan, N. W., and Baer, A. D. Nonacoustic instability of composite propellant combustion ..... 1622
- Beer, Ferdinand P. and Ravers, Robert H. Effect of spacewise variations in a random load field on the response of a linear system ..... 1651
- BenDaniel, D. H. and Hurwitz, H., Jr. Acceleration instability of a vapor-liquid metal interface with longitudinal magnetic field ..... 1049
- Benezra, Joseph N. (see Bateman, Richard E.)
- Berkowitz, Harvey M. and Bleich, Hans H. Axial impact of an elastic right conical membrane shell ..... 1378
- Bethel, Howard E. Comments on "Approximate solution of second-order boundary-layer equations" (TC) ..... 1882
- Bethke, George W. (see Miller, David B.)
- Bhattacharjee, A. (see Levine, S. H.)
- Bhattacharya, R. N. Solidification principle for nonuniformly spinning rotors mounted on a moving vehicle (TN) ..... 1118
- Bhutani, O. P. General study of plane steady flows in nonequilibrium magnetogasdynamics (TN) ..... 367
- Bielkowitz, Peter. Ground tracks of earth-period (24-hr) satellites ..... 2190
- Bieniek, M. P., Fan, T. C., and Lackman, L. M. Dynamic stability of cylindrical shells ..... 495
- Bird, G. A. Aerodynamic properties of some simple bodies in the hypersonic transition regime ..... 55
- Birkebak, Richard C. (see Cremers, Clifford J.)
- Blankenship, Victor D. (see Chung, Paul M.)
- and Merritt, David L. A note on experimental and theoretical comparisons of conical shock-shock interactions (TN) ..... 2054
- Bleich, Hans H. (see Berkowitz, Harvey M.)
- Blick, E. F. and Francis, J. E. Spherically blunted cone pressure distributions (TN) ..... 547
- Blum, Robert E. and Fulton, Robert E. A modification of Potters' method for solving eigenvalue problems involving tridiagonal matrices (TN) ..... 2231
- Blumenthal, Jack L., Santy, Myrri J., and Burns, Eugene A. Kinetic studies of high-temperature carbon-silica reactions in charred silica-reinforced phenolic resins ..... 1053
- Bluston, H. S. An experimental study of jet turbulent mixing at subsonic-supersonic speeds (TN) ..... 1137
- Bobco, R. P. Radiation from conical surfaces with nonuniform radioactivity (TN) ..... 544
- Bogdan, Leonard. Measurement of the thermal parameter ( $\rho c k^{1/2}$ ) for clear fused quartz (TN) ..... 1477

- Bogdonoff, S. M. (see McCroskey, W. J.)
- Bohachevsky, Ihor O. and Rubin, Ephraim L. A direct method for computation of nonequilibrium flows with detached shock waves . . . . . 600
- and Mates, Robert E. A direct method for calculation of the flow about an axisymmetric blunt body at angle of attack . . . . . 776
- Bohon, Herman L. and Anderson, Melvin S. Role of boundary conditions on flutter of orthotropic panels . . . . . 1241
- Bollinger, Loren E., Smith, Gary C., Tomazic, Frederick J., and Edsae, Rudolph. Formation of detonation waves in flowing hydrogen-oxygen and methane-oxygen mixtures . . . . . 1773
- Bonavito, N. L. Determination of mean elements for Vinti's satellite theory (TN) . . . . . 740
- Bonnema, J. P. (see Eastman, D. W.)
- Bornhorst, Walter J. (see Heiser, William H.)
- Bowen, F. (see Brockman, P.)
- Bradley, H. H., Jr. (see Price, E. W.)
- Brandmaier, H. E. Hall-current generator characteristics at constant electron temperature (TN) . . . . . 563
- Brauch, D. F., Buneman, O., and Wadhwa, R. P. Computer studies of plasma boundaries and lens effects created by immersed and withdrawn neutralizers . . . . . 651
- Breakwell, J. V. and Rauch, H. E. Optimum guidance for a low thrust interplanetary vehicle . . . . . 693
- Brockman, P., Hess, R., Bowen, F., and Jarrett, O. Diagnostic studies in a Hall accelerator at low exhaust pressure . . . . . 1209
- Brokaw, Richard S. (see Svehia, Roger A.)
- Brown, Alan C. (see Smith, C. Edward)
- Brown, S. N. Hartree's solutions of the Falkner-Skan equation (TN) . . . . . 2215
- Brownlee, W. G. and Kimbell, G. H. Shock propagation in solid-propellant rocket combustors (TN) . . . . . 1132
- Bryant, R. A. A. (see Beaton, R. H.)
- Buchert, Kenneth P. Comment on "General instability and optimum design of grid-stiffened spherical domes" (TC) . . . . . 379
- Budiansky, Bernard (see Hutchinson, John W.)
- and Hutchinson, John W. A survey of some buckling problems (SA) . . . . . 1505
- Bueche, J. F. (see McCauley, W. D.)
- Bunde, Gene W. (see Fletcher, Edward A.)
- Buneman, O. (see Brauch, D. F.)
- Bunt, E. A. (see Heidelberg, R. G.)
- Burggraf, Odus R. Choice of boundary conditions in viscous interaction theory (TC) . . . . . 1145
- Asymptotic solution for the viscous radiating shock layer . . . . . 1725
- Burns, Eugene A. (see Blumenthal, Jack L.)
- Burton, R. A. (see Carper, H. J.)
- Busch, C. W., Laderman, A. J., and Oppenheim, A. K. Pressure-wave generation in particle-fueled combustion systems: I. Parametric study . . . . . 1638
- Bushnell, David. Influence coefficients for externally pressurized spherical shells (TN) . . . . . 1472
- Butler, Thomas Daniel. Numerical calculations of the transient loading of blunt obstacles by shocks in air . . . . . 460
- Cadek, Frederick C. (see Gottschlich, Chad F.)
- Cambel, Ali Bulent (see Porter, R. W.)
- Cannon, T. C. (see Genin, J.)
- Cantey, D. E. (see Schapery, R. A.)
- Cantrell, R. H. (see McClure, F. T.)
- Capener, E. L., Chown, J. B., Dickinson, L. A., and Nanevich, J. E. Studies on ionization phenomena associated with solid-propellant rockets . . . . . 1349
- Carbonell, J. R. (see Ungar, E. E.)
- Carden, William H. Heat transfer in nonequilibrium dissociated hypersonic flow with surface catalysis and second-order effects . . . . . 1704
- Carley, C. T., Jr. and Smetana, Frederick O. Experiments on transition regime flow through a short tube with a bellmouth entry . . . . . 47
- Carlson, Walter O. (see Shelton, Samuel V.)
- Carper, H. J. and Burton, R. A. A technique for micromanometry (TN) . . . . . 549
- Cass, L. A. (see O'Connor, T. J.)
- Cassanto, John M. Erratum: Effect of cone angle and bluntness ratio on base pressure (TC) . . . . . 384
- Celinski, Zdzislaw N. and Fischer, Fred W. Effect of electrode size in MHD generators with segmented electrodes . . . . . 421
- Chandler, W. T. (see Walter, R. J.)
- Chang, C. C. (see Pao, H. P.)
- Chapman, Gary T. Total boundary-layer mass flow with mass transfer at the wall (TN) . . . . . 1688
- Charvat, F. R. (see Raymond, L.)
- Chen, C. F. Second-order theory for airfoils in uniform shear flow. Chen, Karl K. (see Libby, Paul A.)
- Chen, Ning Hsing. Reply by author to A. Wortman (TC) . . . . . 760
- Reply by author to D. B. Adarkar (TC) . . . . . 1496
- Chen, Tung (see Eschenroeder, Alan Q.)
- Cheng, H. K. and Gaitatzes, G. A. Use of the shock-layer approximation in the inverse hypersonic blunt body problem . . . . . 406
- (see Edwards, R. H.)
- Cheng, Ping. Dynamics of a radiating gas with application to flow over a wavy wall . . . . . 238
- Chisnell, R. F. Radiation effects in the stagnation region (TN) . . . . . 1848
- Chiu, H. H. (see Lu, H. Y.)
- Chou, Pei Chi and Mortimer, Richard W. Numerical integration of flow equations along natural coordinates . . . . . 26
- Chou, Y. S. (see Laitone, E. V.)
- Chow, W. L. Hypersonic slip flow past the leading edge of a flat plate (TN) . . . . . 2062
- Chown, J. B. (see Capener, E. L.)
- Christian, W. J. (see Wolf, L., Jr.)
- Christman, D. R. Target strength and hypervelocity impact (TN) . . . . . 1872
- Chu, C. K. and Gross, R. A. Alfvén waves and induction drag on long cylindrical satellites . . . . . 2209
- Chu, Chong-Wei. An inverse problem of nonequilibrium duct flow (TN) . . . . . 719
- Chung, Paul M. and Blankenship, Victor D. Theory of electrostatic double probe comprised of two parallel plates . . . . . 442
- and Fendell, F. E. and Holt, J. F. Nonequilibrium anomalies in the development of diffusion flames . . . . . 1020
- and Blankenship, Victor D. Errata: "Theory of electrostatic double probe comprised of two parallel plates" (TC) . . . . . 1312
- Church, Charles H., Schlecht, Richard G., Liberman, Irving, and Swanson, Bruce W. Studies of highly radiative plasma using the wall-stabilized pulsed arc discharge . . . . . 1947
- Citron, S. J. Reply by author to A. H. Nayfeh (TC) . . . . . 758
- Clark, Kenn E. (see Jahn, Robert G.)
- Clarkson, M. H., Field, R. E., Jr., and Keefer, D. R. Electron temperatures in several rf-generated plasmas (TN) . . . . . 546
- (see Keefer, D. R.)
- Clavier, Philippe A. Comment on "Geomagnetically trapped radiation" (TC) . . . . . 384
- Clayton, B. R. (see Massey, B. S.)
- Coffey, Thomas C. and Williams, Ivan J. Stability analysis of multi-loop, multirate sampled systems . . . . . 2178
- Cohen, Gerald A. Reply by author to E. W. Ross, Jr. (TC) . . . . . 1312
- Reply by author to A. Kalins (TC) . . . . . 1498
- Buckling of axially compressed cylindrical shells with ring-stiffened edges (TN) . . . . . 1859
- Conservativeness of a normal pressure field acting on a shell (TC) . . . . . 1886
- Cohen, M. J. Comment on "Perturbation solutions for 19w-thrust rocket trajectories" (TC) . . . . . 573
- Cohen, Norman S. A correlation of the spread and decay of turbulent free jets (TN) . . . . . 926
- Cohz, Samuel N. (see Ladacki, Michael)
- Coleburn, Nathaniel L. Sensitivity of composite and double-base propellants to shock waves . . . . . 521
- Coleman, Paul J., Jr. Interaction of the solar wind with the planets (SA) . . . . . 4
- Coles, Donald and Van Atta, Charles. Progress report on a digital experiment in spiral turbulence . . . . . 1969
- Columbus, Richard L. (see Likins, Peter W.)
- Comfort, E. H. (see O'Connor, T. J.)
- Cook, W. J. and Felderman, E. J. Reduction of data from thin-film heat-transfer gages: A concise numerical technique (TN) . . . . . 561
- Cooper, David M. Equilibrium air radiation from shock layers at 11.3 km/sec . . . . . 2125
- Coppa, Anthony P. Measurement of initial geometrical imperfections of cylindrical shells (TN) . . . . . 172
- Cox, R. L. (see Lowrance, D. T.)
- Crawford, Robert F. and Schwartz, David B. Reply by authors to K. P. Buchert (TC) . . . . . 379
- Cremer, Clifford J. and Birkebak, Richard C. Prediction of mode transition in an arc with a transpiration cooled anode (TN) . . . . . 167
- (see Pfender, E.)
- and Pfender, E. Measurements of the thermal radiation from an argon plasmajet (TN) . . . . . 376
- Cresci, Robert J. (see Sasman, Philip K.)
- (see Zakay, Victor)
- Criscione, J. M., Volk, H. F., and Smith, A. W. Protection of graphite from oxidation at 2100°C . . . . . 1791
- Crist, S., Sherman, P. M., and Glass, D. R. Study of the highly underexpanded sonic jet . . . . . 68
- Crocco, L. and Sirignano, W. A. Effect of the transverse velocity component on the nonlinear behavior of short nozzles (TN) . . . . . 1428
- Crowe, C. T. and Willoughby, P. G. A mechanism for particle growth in a rocket nozzle (TN) . . . . . 1677
- Cuffel, R. F. (see Back, L. H.)
- Culick, F. E. C. Remarks on acoustic oscillations in a solid propellant rocket (TN) . . . . . 1120
- Rotational axisymmetric mean flow and damping of acoustic waves in a solid propellant rocket (TN) . . . . . 1462
- Cunningham, Herbert J. Improved numerical procedure for harmonically deforming lifting surfaces from the supersonic kernel function method . . . . . 1961
- Dabora, E. K. (see Kerkam, B. F.)
- David, T. S. (see Sichel, M.)
- Davis, Norman (see Mehta, Pravin K.)
- Davies, P. O. A. L. Turbulence structure in free shear layers . . . . . 1971
- Davis, Robert E. Statistical dependence effect of normal mode response (TN) . . . . . 2033
- Davis, Stephen H. (see Aroesty, Jerome)
- Davis, W. R. Use of  $K$ -orthogonality for the inversion of state transition matrices (TN) . . . . . 1125
- Dehority, G. L. (see Price, E. W.)
- Deiwert, George S. (see Marvin, Joseph G.)
- DeLuzio, A. (see Stuhlman, C.)
- Demetriades, Anthony and Doughman, Ernest L. Langmuir probe diagnosis of turbulent plasmas . . . . . 451
- Denham, Walter F. On numerical optimization with state variable inequality constraints (TN) . . . . . 550
- and Pines, Samuel. Sequential estimation when measurement function nonlinearity is comparable to measurement error . . . . . 1071
- and Mohan, John J. Choosing trajectory parameters to maximize mission probability of success . . . . . 1293
- Denison, D. R. (see Husmann, O. K.)
- Der, James J. Criteria for self-similar solutions to radiative flow (TN) . . . . . 1107
- Devan, Leroy. Reply by author to H. E. Bethel (TC) . . . . . 1883
- Devoto, R. S. Comments on "Transport properties of hydrogen" (TC) . . . . . 1149
- Dewey, C. Forbes, Jr. Interpretation of recovery-temperature measurements at low Reynolds numbers (TN) . . . . . 567
- Dharmarajan, S. N. (see Wilson, P. E.)
- Dickinson, L. A. (see Capener, E. L.)
- Dimmock, T. H. (see Levoy, M. M.)

- Divoky, D. (see Mayer, E.)
- Donaldson, Coleman duP. (see Snedeker, Richard S.)
- and Gray, K. Evan. Theoretical and experimental investigation of the compressible free mixing of two dissimilar gases. . . . . 2017
- Dougal, Arwin A. (see Friedrich, Otto M., Jr.)
- Doughman, Ernest L. (see Demetriades, Anthony)
- Douglas, B. C. (see Francis, M. P.)
- Dow, Norris F. and Rosen, B. Walter. Structural efficiency of orthotropic cylindrical shells subjected to axial compression. . . . . 481
- Dowell, Earl H. and Widdall, Sheila E. Generalized aerodynamic forces on an oscillating cylindrical shell: Subsonic and supersonic flow. . . . . 607
- Nonlinear oscillations of a fluttering plate. . . . . 1267
- Flutter of infinitely long plates and shells. Part I: Plate. . . . . 1370
- Flutter of infinitely long plates and shells. Part II: Cylindrical shell. . . . . 1510
- Comment on "On dynamic snap buckling of shallow arches" (TC) 1887
- Draper, James Stark. Infrared radiometry of turbulent flows. . . . . 1597
- Dreshfield, R. L. and House, R. D. Spectral normal emittance of single crystals (TN). . . . . 371
- Dryer, Murray and Faye-Petersen, Rolf. Magnetogasdynamics boundary condition for a self-consistent solution to the closed magnetopause. . . . . 246
- D'Sa, E. R. Hydromagnetic wall jet (TN). . . . . 537
- Dugundji, John. Theoretical considerations of panel flutter at high supersonic Mach numbers. . . . . 1257
- Dunn, William P. On material strengths of the hypervelocity impact problem (TN). . . . . 535
- Dunwoody, N. T. Magnetohydrodynamic natural convection in a cylinder (TN). . . . . 368
- Eastman, D. W. and Bonnema, J. P. Flowfield of a highly under-expanded jet impinging on a surface (TN). . . . . 1302
- Eckerman, Jerome (see Lien, Hwachii)
- Eckert, E. R. G. (see Goldstein, R. J.)
- Eckstein, Martin C. (see Shi, Yun Y.)
- Edelbaum, T. N. An asymptotic solution for optimum power limited orbit transfer (TN). . . . . 1491
- Edelman, Raymond and Rosenbaum, Harold. Finite rate evaporation of hydrogen in air (TN). . . . . 163
- Edse, Rudolph (see Bollinger, Loren E.)
- Edwards, D. K. (see Herold, L. M.)
- Edwards, R. H. and Cheng, H. K. Steady expansion of a gas into a vacuum (TN). . . . . 558
- Ellen, C. H. Panel instability caused by oblique shock waves. . . . . 680
- Elliott, David G. Direct current liquid-metal magnetohydrodynamic power generation. . . . . 627
- Elrod, Harold G., Jr. A class of nozzle-like exact solutions for compressible axisymmetric flow (TN). . . . . 1426
- Enright, John A. (see Gottschlich, Chad F.)
- Eraslan, Arsev H. Duct-flow of conducting fluids under arbitrarily oriented applied magnetic fields. . . . . 620
- Nonuniform conductivity MHD channel flow solution by B. G. Galerkin method. . . . . 1759
- Ericson, W. B. (see Loeffler, A. L., Jr.)
- Eschenroeder, Alan Q. and Chen, Tung. Ionization behind a sphere in hypersonic flight. Part I: Nearwake theory. . . . . 2149
- Escobal, P. R. Non-two-body reference orbit for Encke's method (TN). . . . . 930
- Escudier, M. P. (see Nicoll, W. B.)
- Etemad, Galeb A. Oxidation and mechanical performance of tungsten at high temperatures and high pressures. . . . . 1543
- Evans, Roger J. (see Pister, Karl S.)
- Fan, T. C. (see Bieniek, M. P.)
- Further study on the dynamic stability of cylindrical shells (TN) 2063
- Fannelop, T. K. Displacement thickness for boundary layers with surface mass transfer (TC). . . . . 1142
- Reply to O. R. Burggraf (TC). . . . . 1146
- Rapid calculations of boundary layers with coupled heat and mass transfer (TN). . . . . 1433
- Farn, Charles L. S. and Arpaci, Vedat S. On the numerical solution of unsteady, laminar boundary layers (TN). . . . . 730
- Faye-Petersen, Rolf (see Dryer, Murray)
- Fein, Harvey L. A theoretical model for predicting aluminum oxide particle size distributions in rocket exhausts. . . . . 92
- Errata: "A theoretical model for predicting aluminum oxide particle size distributions in rocket exhausts" (TC). . . . . 960
- Felderman, E. J. (see Cook, W. J.)
- Feldt, Walter T. and Shulman, Yechiel. More results on solar influenced libration point motion (TN). . . . . 1501
- Fendell, F. E. (see Chung, Paul M.)
- Fiebig, Martin. On the motion within fluid gyroscopes. . . . . 667
- Field, R. E., Jr. (see Clarkson, M. H.)
- Fillo, John A. Approximate solution to the flat plate thermometer problem (TN). . . . . 1876
- Fink, Martin R. Hypersonic minimum-drag slender bodies of revolution. . . . . 1717
- Florini, Vittorio. Analytical solution for minimum length MHD accelerator with constant pressure (TN). . . . . 1098
- Flischer, Fred W. (see Celinski, Zdzislaw N.)
- Fishman, Norman. Relationship between filler distribution and uniaxial rupture of composite solid propellants. . . . . 1044
- (see Rosser, Willis A., Jr.)
- Erratum: "Relationship between filler distribution and uniaxial rupture of composite solid propellants" (TC). . . . . 1888
- Fletcher, Edward A. and Bunde, Gene W. Gas evolution from a solid rocket propellant during depressurization to produce a quench (TN). . . . . 181
- and Hiroki, Tsuyoshi. Gas evolution from solid propellants during pressure decays (TN). . . . . 2222
- Fletcher, Robert F., Gerneth, Dal, and Goodman, Clark. Explosion of propellants (TN). . . . . 755
- Fogoroli, Richard P. and Saydah, Alan R. Turbulent heat-transfer and skin-friction measurements on a porous cone with air injection at high Mach numbers (TN). . . . . 1116
- Fowler, W. T. (see Tapley, B. D.)
- Fox, Jay. A criterion for the transition between flow regimes in turbulent cavity flow (TN). . . . . 364
- Frackin, David B. (see Grey, Jerry)
- Francis, J. E. (see Blick, E. F.)
- Francis, John E. and Love, Tom J., Jr. Radiant heat-transfer analysis of isothermal diathermanous coatings on a conductor. . . . . 643
- Francis, M. P., Gedeon, G. S., and Douglas, B. C. Perturbations of repeating groundtrack satellites by tesseral harmonics in the gravitational potential. . . . . 1281
- Freudenthal, A. M. (see Henry, L. A.)
- Friedly, John C. and Petersen, Eugene E. Influence of combustion parameters on instability in solid propellant motors: Part I. Development of model and linear analysis. . . . . 1604
- and Petersen, Eugene E. Influence of combustion parameters on instability in solid propellant motors. Part II: Nonlinear analysis. . . . . 1932
- Friedman, Morton H. Approximate closed solutions for detonation parameters in condensed explosives. . . . . 1182
- Friedrich, Otto M., Jr. and Dougal, Arwin A. Comparison of numerical calculations and measured space-time resolved plasma properties of a dynamical theta pinch. . . . . 2159
- Fulton, Robert E. (see Blum, Robert E.)
- Fung, Y. C. (see Olson, Mervyn D.)
- Gaitatzes, G. A. (see Cheng, H. K.)
- Gannon, R. E., Lazzio, T. S., Leigh, C. H., and Wolnik, S. J. Reply by authors to H. Mark and M. J. Mirtich (TC). . . . . 1500
- Garcia, Frank, Jr. Comment on the location of the center of pressure of a right circular cone using Newtonian impact theory (TC). . . . . 1150
- Gardner, J. A. (see Kelly, A. J.)
- Gardner, R. A., Uherka, K. L., and Lykoudis, P. S. Influence of a transverse magnetic field on forced convection liquid metal heat transfer. . . . . 848
- Gardner, R. E. (see Ormbsbee, A. I.)
- Garvine, Richard W. Shock wave transport effects on hypersonic leading edge flow (TN). . . . . 1856
- Gebhart, Benjamin (see Polymeropoulos, Constantine E.)
- Gedeon, G. S. (see Francis, M. P.)
- Gemin, H., Sweet, A. L., and Cannon, T. C. Equivalent vibrating systems (TN). . . . . 171
- George, D. W. (see Armstrong, J. F.)
- Gerard, George (see Milligan, Roger)
- Comparative efficiencies of aerospace pressure vessel design concepts (SA). . . . . 2081
- (see Becker, Herbert)
- Gerber, N. (see Spurk, J. H.)
- Gerneth, Dal (see Fletcher, Robert F.)
- Gibson, W. E. Stochastic model for turbulent, reacting wakes. . . . . 2001
- Gilbert, Ralph B. and Strehlow, Roger A. Theory of detonation initiation behind reflected shock waves. . . . . 1777
- Glaß, D. R. (see Crist, S.)
- Glass, J. C. (see Noeske, H. O.)
- Gloersen, Per, Gorowitz, Bernard, and Kenney, J. T. Energy efficiency trends in a coaxial gun plasma engine system. . . . . 436
- (see Gorowitz, Bernard)
- (see Karras, Thomas)
- Goldstein, Raymond (see Richmond J. Kenneth)
- Richmond, J. Kenneth, and Oates, Gordon C. Electrical conductivity measurements in a Faraday accelerator (TN). . . . . 2043
- Goldstein, R. and Mastrop, F. N. Performance Measurements on a pulsed ablating thruster. . . . . 99
- Goldstein, R. J., Eckert, E. R. G., Tsou, F. K., and Haji-Sheikh, A. Film cooling with air and helium injection through a rearward-facing slot into a supersonic air flow. . . . . 981
- Golf, Linwood C. (see Starks, Douglas F.)
- Gollnick, A. F., Jr. Blunt body experiments with central injection (TN). . . . . 374
- Gooding, T. J. (see Ashby, D. E. T. F.)
- Goodman, Clark (see Fletcher, Robert F.)
- Gorowitz, Bernard (see Gloersen, Per)
- and Karras, Thomas W. and Gloersen, Per. Performance of an electrically triggered repetitively pulsed coaxial plasma engine. . . . . 1027
- (see Karras, Thomas)
- Gottschlich, Chad F., Enright, John A., and Cadek, Frederick C. Measurement of the velocity distribution in a plasmajet (TN). . . . . 1085
- Grabowsky, W. R. (see Starnes, K. E.)
- Graham, John D. (see Sherman, Bernard C.)
- Graves, Kenneth W. Ablation in a high shear environment. . . . . 853
- Erratum: "Ablation in a high shear environment" (TC). . . . . 1696
- Gray, J. Don. On the existence of a pressure plateau in pure laminar separated flows (TC). . . . . 1503
- Gray, K. Evan (see Donaldson, Coleman duP.)
- Green, A. E. S. Electron impact cross sections for aeronomy (SA). . . . . 769
- Greene, Bruce E. Application of generalized constraints in the stiffness method of structural analysis. . . . . 1531
- Greif, Robert (see Johnson, Donald E.)
- Inertia effects in the dynamic response of a cylindrical shell (TN) 1105
- Grey, Jerry, Sherman, Martin P., Williams, Peter M., and Frackin, David B. Laminar arcjet mixing and heat transfer: Theory and experiments. . . . . 986
- Gross, R. A. (see Chu, C. K.)
- Groth, Eric E. (see Pate, Samuel R.)
- Gundersen, Roy M. Nonisentropic two-dimensional MHD flow (TN). . . . . 1474
- Gunther, P. Asymptotically optimum two-impulse transfer from lunar orbit. . . . . 346
- Gupta, A. S. Hydromagnetic free convection flows from a horizontal plate (TN). . . . . 1439
- Gurney, J. P. General formulation of surface catalytic reactions (TN). . . . . 1299

- Hains, F. D. Acceleration of magnetogasdynamic source flow through the sonic velocity (TN)..... 158
- Haji-Sheikh, A. (see Goldstein, R. J.)
- Hall, J. Gordon (see Russo, Anthony L.)
- Hama, Francis R. Estimation of the strength of lip shock (TN)..... 166
- Hamilton, Janet V. (see Ladacki, Michael)
- Hammer, Sanford S. and Agosta, Vito D. Wave slope-gas dynamic interactions in liquid rockets (TN)..... 753
- Handelman, Morris. Optimal free-space fixed-thrust trajectories using impulsive trajectories as starting iteratives..... 1077
- Hankins, L. D. Dynamic stresses in a thick-walled spherical shell of Voigt material (TN)..... 2038
- Hansel, James G. and McAlevy, Robert F., III. Energetics and chemical kinetics of polystyrene surface degradation in inert and chemically reactive environments..... 841
- Hanson, A. R. Vortex shedding from yawed cylinders (TN)..... 738
- Hanson, R. K. and Watson, R. Effects of dissociation rate magnitudes and relative collision efficiencies on relaxation profiles in diatomic gases (TN)..... 749
- Harden, Darrel G. Jet boundary determination of underexpanded two-phase carbon dioxide nozzle flow (TN)..... 746
- Harris, Clarence J. Comment on "Nonequilibrium effects on high-enthalpy expansion of air" (TC)..... 1148
- Hart, R. W. (see McClure, F. T.)
- Hartsook, L. B. (see Adarkar, D. B.)
- Hartunian, R. A. (see Thompson, W. P.)
- and Spencer, D. J. Visualization technique for massive blowing studies (TN)..... 1305
- Hashin, Zvi. Viscoelastic fiber reinforced materials..... 1411
- Hassan, H. A. (see Smith, A. M.)
- Hawthorn, Robert D. and Nixon, Alan C. Shock tube ignition delay studies of endothermic fuels..... 513
- Headley, J. W. A simple calibration technique for skin friction balances (TN)..... 1802
- Heer, E. Thermal excitations of thin elastic shells (TN)..... 2234
- Heidelbach, R. G., Avery, W. H., and Bunt, E. A. Ablating shield for plasma arc probe (TN)..... 751
- Heighway, J. E. (see Michels, C. J.)
- Heiser, William H. and Bornhorst, Walter J. A modified Pohlhausen velocity profile for MHD boundary-layer problems (TN)..... 1139
- Hempel, Peter R. Representation of the Lagrangian multipliers for coast periods of optimum trajectories (TN)..... 729
- Henderson, Arthur, Jr., Watson, Ralph D., and Wagner, Richard D., Jr. Fluid dynamic studies to  $M = 41$  in helium..... 2117
- Henry, L. A. and Freudenthal, A. M. Standing waves in a viscoelastic cylinder case-bonded to a thin shell..... 313
- Henry, Roger P. Lorentz force maximization in continuous flow Hall current plasma accelerators (TN)..... 165
- Hernance, Clarke E. A model of composite propellant combustion including surface heterogeneity and heat generation..... 1629
- Herold, L. M. and Edwards, D. K. Bidirectional reflectance characteristics of rough, sintered-metal, and wire-screen surface systems..... 1802
- Herrmann, G. (see Baker, E. H.)
- (see Nemat-Nasser, S.)
- Herzog, J. A. (see Mehan, R. L.)
- Hess, R. (see Brockman, P.)
- Hill, D. E. (see Hopkins, D. F.)
- Hill, W. G., Jr. (see Page, R. H.)
- Hiroki, Tsuyoshi (see Fletcher, Edward A.)
- Hoff, Nicholas J., Madsen, Wayne A., and Mayers, J. Postbuckling equilibrium of axially compressed circular cylindrical shells..... 126
- Hoffman, Gilbert H. and Platzler, Max F. On supersonic flow past oscillating bodies of revolution (TN)..... 370
- (see Platzler, Max F.)
- Hoffman, J. D. (see Lorenc, S. A.)
- Hoffmann, O. (see Jahsman, W. E.)
- Hoge, Harold J. and Segars, Ronald A. Reply by authors to W. C. Robison and J. R. Nelson (TC)..... 1310
- and Segars, Ronald A. An equation for the entrainment of ejectors (TN)..... 1689
- Holden, Michael S. Experimental studies of separated flows at hypersonic speeds. Part I: Separated flows over axisymmetric spiked bodies..... 591
- Experimental studies of separated flows at hypersonic speeds. Part II: Two-dimensional wedge separated flow studies..... 790
- Holt, J. F. (see Chung, Paul M.)
- Hooker, William W. and Zaslawsky, Elaine G. Reciprocity theorem for systems with gyroscopic coupling (TN)..... 566
- Hooley, R. F. (see Khanna, J.)
- Hopkins, D. F. and Hill, D. E. Effect of small radius of curvature on transonic flow in axisymmetric nozzles..... 1337
- Hopkins, Edward J. and Keener, Earl R. Comments on "Calibration of Preston tubes in supersonic flow" (TC)..... 760
- Hough, Ralph L. Pyrolytic titanium diboride filaments for composites..... 107
- (see Starks, Douglas F.)
- House, R. D. (see Dreshfield, R. L.)
- Hsia, Henry Tao-Sze. Equivalence of secondary injection to a blunt body in supersonic flow (TN)..... 1832
- Hubbard, Edward W. Approximate calculation of highly under-expanded jets (TN)..... 1877
- Hugelman, R. D. Errata: "Application of Pohlhausen's method to stagnation-point flow" (TC)..... 576
- Hughes, W. F. Magnetohydrodynamic potential flow over a cylinder with an axial magnetic field (TN)..... 1104
- Humphreys, John S. On dynamic snap buckling of shallow arches. — On the adequacy of energy criteria for dynamic buckling of arches (TN)..... 921
- Experiments on dynamic plastic deformation of shallow circular arches (TN)..... 926
- and Sve, Charles. Dynamic buckling of cylinders under axial shock-tube loading (TN)..... 1477
- Reply by author to E. H. Dowell (TC)..... 1888
- Hurwitz, H., Jr. (see BenDaniel, D. J.)
- Husmann, O. K., Jamba, D. M., and Emerson, D. R. Influence of residual gas atmosphere in space chambers on neutral efflux and critical temperature of tungsten ionisers..... 273
- Huston, Ronald L. Reply by author to J. G. Simmonds (TC)..... 380
- Hutchinson, John W. and Budiansky, Bernard. Dynamic buckling estimates..... 525
- (see Budiansky, Bernard)
- Ibricu, M. M. (see Price, E. W.)
- Imber, M. Thermal conductivity: A parameter in solid propellant burning..... 1610
- Inami, S. Henry (see Rosser, Willis A., Jr.)
- Incropera, Frank and Leppert, George. Flow transition phenomena in a subsonic plasmajet (TN)..... 1087
- Inger, George R. Blast wave impingement on a slender wedge moving at hypersonic speeds..... 428
- Oblique blast impingement on slender hypersonic bodies (TN)..... 1475
- A simple model shear flow with blowing (TN)..... 1834
- Irons, Bruce M. Comment on "Distributed mass matrix for plate element bending" (TC)..... 189
- Engineering applications of numerical integration in stiffness methods (TN)..... 2035
- Iyengar, K. T. Sundara Raja and Yogananda, C. V. Comparison of elasticity and shell theory solutions for long circular cylindrical shells..... 2090
- Jaffe, N. A. (see Smith, A. M. O.)
- Effects of a transverse magnetic field and spanwise electric field on the boundary layer of a conducting fluid (TN)..... 1843
- Jahn, Robert G. and Clark, Kenn E. A large dielectric vacuum facility (TN)..... 1135
- Jahsman, W. E. and Hoffman, O. Analysis of short cylindrical shells of variable wall thickness (TC)..... 1686
- Jamba, D. M. (see Husmann, O. K.)
- Jarrett, O. (see Brockman, P.)
- Jean, B. Experimental observations of optical radiation associated with hypervelocity impact (TN)..... 1854
- Jen, Norman C. Reply by author to S. H. Lam (TC)..... 378
- Jenkins, Andrew H., Jenkins, Billy Z., and Johnson, Lloyd H. Transonic and low supersonic shock shape solutions (TN)..... 1483
- Jenkins, Billy Z. (see Jenkins, Andrew H.)
- Jezdinsky, Valdimir. Measurement of turbulence by pressure probes (TN)..... 2072
- Jischke, Martin. Radiation coupled wedge flows (TN)..... 1300
- Johansen, A. E. (see Michels, C. J.)
- Johns, D. J. Comments on "New methods in heat flow analysis" (TC)..... 1151
- Johnson, Donald E. Thermoelastic analysis of a solid cone..... 118
- and Greif, Robert. Dynamic response of a cylindrical shell: Two numerical methods..... 486
- A proof of the stability of the Houbolt method (TN)..... 1450
- Johnson, Kurt P. A plasma-core nuclear rocket utilizing a magnetohydrodynamically-driven vortex..... 635
- Johnson, Lloyd H. (see Jenkins, Andrew H.)
- Johnson, Robert H. Interactions within the laminar hypersonic boundary layer (TN)..... 2245
- Jones, R. E. and Strome, D. E. Direct stiffness method analysis of shells of revolution utilizing curved elements..... 1519
- Jones, Robert E. Results of large vacuum facility tests of an MPD arc thruster (TN)..... 1455
- Jones, Robert M. Toward a new snap-through buckling criterion for axially compressed circular cylindrical shells..... 1526
- Jordan, P. F. and Shelley, P. E. Stabilization of unstable two-point boundary value problems (TN)..... 923
- Kalms, Arturs. Comments on the analysis of free vibration of rotationally symmetric shells (TC)..... 1497
- Kane, T. R. and Barba, P. M. Effects of energy dissipation on a spinning satellite..... 1391
- and Robe, T. R. Gravity torque effects (TN)..... 1454
- Real solutions of sets of nonlinear equations (TN)..... 1880
- Kaplan, Marshall H. Free-molecular diffusion..... 675
- Kapur, Kanwar K. Prediction of plate vibrations using a consistent mass matrix (TN)..... 565
- Karamcheti, Krishnamurti (see Rasmussen, Maurice L.)
- Karlsson, T. and Ball, R. E. Exact plane strain vibrations of composite hollow cylinders: Comparison with approximate theories (TN)..... 179
- Karras, Thomas W. (see Gorowitz, Bernard)
- and Gorowitz, Bernard and Gloersen, Per. Neutral mass density measurements in a repetitively pulsed coaxial plasma accelerator..... 1366
- Kastner, S. O. and Wolff, C. L. Earth as an occulting disk for study of solar EUV emission heights (TN)..... 1096
- Keefer, D. R. (see Clarkson, M. H.)
- Clarkson, M. H., and Mathews, B. E. Probe measurements in an electrodeless discharge (TN)..... 1850
- Keener, Earl R. (see Hopkins, Edward J.)
- Keller, J. A., Baer, A. D., and Ryan, N. W. Ignition of ammonium perchlorate composite propellants by convective heating..... 1358
- Kelly, A. J., Nerheim, N. M., and Gardner, J. A. Electron density and temperature measurements in the exhaust of an MPD source..... 291
- Kempner, Joseph (see Vafakos, William P.)
- Kendall, E. G., Slaughter, J. I., and Riley, W. C. A new class of hypereutectic carbide composites..... 900
- Kenney, J. T. (see Gloersen, Per)
- Kerkam, B. F. and Dabora, E. K. Effect of water vapor on  $H_2O_2$  detonations (TN)..... 1101
- Kerrebrock, Jack L. Segmented electrode losses in MHD generators with nonequilibrium ionization..... 1938
- Kessel, P. G. and Schlack, A. L. Resonance of rods, strings, and torsion members due to cyclic moving loads (TN)..... 1879

- Ketter, D. J. Addendum: "Coupled panel/cavity vibrations" (TC) 768
- Kevorkian, J. (see Lagerstrom, P. A.)
- Khanna, J. and Hooley, R. F. Comparison and evaluation of stiffness matrices 2105
- Kimbell, G. H. (see Brownlee, W. G.)
- Kind, R. J. and Orlik-Rückemann, Kazimierz J. Stability derivatives of sharp cones in viscous hypersonic flow (TN) 1469
- King, William S. (see Mirels, Harold)
- Low-frequency, large-amplitude fluctuations of the laminar boundary layer 994
- Kishore, K. (see Rastogi, R. P.)
- Klosner, Jerome M. and Levine, Howard S. Further comparison of elasticity and shell theory solutions 467
- Knackstedt, Wilhelm F. A mathematical model of the cyclic stress-strain relationship 1822
- Knox, Eugene C. (see Lewis, Clark H.)
- Knudson, J. A V-gyro pair as a dual-rate sensor (TN) 1449
- Knystautas, Romas (see Lee, Benedict H. K.)
- (see Lee, John H.)
- Komar, James J. Skin-friction predictions in turbulent compressible flow (TN) 1307
- Korkan, K. D. Comments on "Bow shock shape about a spherical nose" (TC) 381
- Kornecki, Aleksander. Comments on "Stresses about a circular hole in a cylindrical shell" (TC) 765
- Kotansky, Donald R. The use of honeycomb for shear flow generation (TN) 1490
- Koval, Leslie R. Note on the vibrational characteristics of thin-walled shells (TC) 571
- Kramer, Ray L. (see Smith, C. Edward)
- Kraus, H. Thermally induced vibrations of thin nonshallow spherical shells 500
- Krawec, Roman. Radial density and temperature profiles at the ion cyclotron wave resonance point 2166
- Krey, Rhoda U. (see Morris, James C.)
- Krupnick, A. C. (see Zerlaut, Gene A.)
- Kubota, Toshi (see Lewis, John E.)
- Kuby, W. C. Experiments on hydrogen recombination in nozzle flows for the  $H_2/F_2$  system (TN) 160
- Use of the method of integral relations for the determination of the convective heat flux to a re-entry body (TN) 947
- Kuo, Yung-huang and Baldwin, Lionel V. Diffusion and decay of turbulent elliptic wakes 1566
- Lackman, Leslie M. (see Bieniek, M. P.)
- and Ault, Robert M. Influence of plasticity correction factor in minimum weight analysis (TN) 713
- Ladacki, Michael. Silicon carbide in ablative chars (TN) 1445
- Hamilton, Janet V., and Cohz, Samuel N. Heat of pyrolysis of resin in silica-phenolic ablator 1798
- Laderman, A. J. (see Busch, C. W.)
- Detonability of hydrogen-oxygen mixtures in large vessels at low initial pressures 1784
- Lagerstrom, P. A. and Kevorkian, J. Nonplanar earth-to-moon trajectories in the restricted three-body problem 149
- and Kevorkian, J. Errata: "Nonplanar earth-to-moon trajectories in the restricted three-body problem" (TC) 960
- Laitone, E. V. and Chou, Y. S. Reply by authors to R. J. Woodcock (TC) 763
- Lakshminathan, C. (see Millican, Roger)
- Lam, S. H. Comments on "Satellite potential in an ionized atmosphere" (TC) 378
- Larson, A. V. (see Ashby, D. E. T. F.)
- Laszio, T. S. (see Gannon, R. E.)
- Laurmann, J. A. Simplified equations for hypersonic viscous flow past slender bodies (TN) 568
- Lawver, B. R. Some observations on the combustion of  $N_2H_4$  droplets 659
- Lear, C. W. (see Alford, M. W.)
- Lee, Benedict H. K., Lee, John H., and Knystautas, Romas. Transmission of detonation waves through orifices (TN) 365
- (see Lee, John H.)
- Lee, C. C. Gasdynamic structure of jets from plug nozzles (TN) 1114
- Lee, D. H. and Sheppard, L. M. An approximate second-order wing theory (TN) 1828
- Lee, George. Hypersonic flow over a blunt flat plate with surface mass transfer (TN) 2049
- Lee, John H. (see Lee, Benedict H. K.)
- Lee, Benedict H. K., and Knystautas, Romas. Shock-flame interaction in a cylindrical chamber (TN) 736
- Lee, Lawrence H. N. (see Batterman, Steven C.)
- Lee, Richard H. C. Radiative cooling of a uniform gas flow (TN) 1846
- Leigh, C. H. (see Gannon, R. E.)
- Lepper, R. (see Levine, S. H.)
- Leppert, George (see Incropera, Frank)
- Levine, Gerald M. A method of orbital navigation using optical sightings to unknown landmarks 1928
- Levine, Howard S. (see Klosner, Jerome M.)
- Levine, S. H., Bhattacharjee, A., and Lepper, R. Forbidden regions produced by two parallel dipoles 654
- Levy, M. M. and Dimmock, T. H. Significance of nonequilibrium conductivity on plasma engine performance (TN) 553
- Lewellen, W. S., Ross, D. H., and Rosenzweig, M. L. Binary diffusion in a confined vortex 396
- and Mirels, Harold. Optimum lifting bodies in hypersonic viscous flow (TN) 1866
- Lewis, Clark H. and Knox, Eugene C. A spherically blunted cone at angle of attack (TN) 1110
- and Marchand, Ernest O., and Little, Herbert R. Mass transfer and first-order boundary-layer effects on sharp cone drag. Part I: At supersonic conditions 1697
- and Marchand, Ernest O., and Little, Herbert R. Mass transfer and first-order boundary-layer effects on sharp cone drag. Part II: At hypersonic conditions 1954
- Lewis, John E. and Kubota, Toshi. Stanton tube calibration in a laminar boundary layer at Mach 6 (TN) 2251
- Li, T. Y. Reply to T. K. Fannelop (TC) 1144
- Libby, Paul A. (see Baronti, Paolo O.)
- and Chen, Karl K. Remarks on quasilinearization applied in boundary-layer calculations (TN) 937
- Secondary flows associated with a supersonic corner region (TN) 1130
- Liberman, Irving (see Church, Charles H.)
- Liebermann, Richard W. (see Morris, James C.)
- Liebling, L. (see Ashby, D. E. T. F.)
- Lien, Hwachii. Erratum: "A single formula for the velocity distribution in the turbulent inner and outer boundary layers" (TC) 192
- and Eckerman, Jerome. Interferometric analysis of density fluctuations in hypersonic turbulent wakes 1988
- Likins, Peter W. and Columbus, Richard L. Effects of eddy-current damping on satellite attitude stability (TN) 1123
- Lin, Shao-Chi. A bimodal approximation for reacting turbulent flows: I. Description of the model 202
- A bimodal approximation for reacting turbulent flows: II. Example of quasi-one-dimensional wake flow 210
- Lin, Y. J. (see Ueng, C. E. S.)
- Little, Herbert R. (see Lewis, Clark H.)
- Lock, Malcolm H. Snapping of a shallow sinusoidal arch under a step pressure load 1249
- Locke, Edward V. and McCune, James. Growth rates for axial magneto-acoustic waves in a Hall generator 1748
- Loeffler, A. L., Jr., Aronowitz, L., and Ericson, W. B. Self-excited explosive-driven MHD generator (TN) 942
- Loh, W. H. T. Errata: "Extension of second-order theory of entry mechanics to oscillatory entry solutions" (TC) 1696
- Lord, John A. (see Russo, Anthony L.)
- Lorenc, S. A. and Hoffman, J. D. Correlation of performance of conical and contoured nozzles for gas-particle flow (TN) 169
- Lorenz, George C. (see Woodruff, Lawrence W.)
- Loveberg, R. H. Investigation of current-sheet microstructure 1215
- Love, Tom J., Jr. (see Francis, John E.)
- Lowrance, D. T. and Cox, R. L. Fundamental studies of the stability of thermal-control coatings 906
- Lu, H. Y. and Chiu, H. H. Dynamics of gases containing evaporable liquid droplets under a normal shock 1008
- Lu, Pau-Chang. Comment on "Validity of integral methods in MHD boundary-layer analysis" (TC) 1497
- Lubow, Anthony G. TELSTAR orbit prediction method-accuracy comparison with other orbit prediction methods 361
- Luke, Keung P. Comments on the work function of metal droplets (TC) 382
- Lusty, Arthur H., Jr. and Miele, Angelo. Bodies of maximum lift-to-drag ratio in hypersonic flow 2130
- Lykoudis, Paul S. A review of hypersonic wake studies (SA) 577
- (see Gardner, R. A.)
- (see Yu, C. P.)
- Lyman, Frederic A. Maxwellization of electrons in a low-voltage, atmospheric pressure gas discharge (TN) 1128
- Lynn, Y. M. Comment on "Magnetohydrodynamic flow past a thin airfoil" (TC) 189
- Lyons, William C. Comments on heat induced vibrations of elastic beams, plates, and shells (TC) 1502
- MacNeal, R. H., Winemiller, A. F., and Bailie, J. A. Elastic stability of cylindrical shells reinforced by one or two frames and subjected to external radial pressure (TN) 1431
- Madsen, Wayne A. (see Hoff, Nicholas J.)
- Malmuth, N. D. Hypersonic flow over a delta wing of moderate aspect ratio (TN) 555
- Errata: "Hypersonic flow over a delta wing of moderate aspect ratio" (TC) 1312
- Marchand, Ernest O. (see Lewis, Clark H.)
- (see Lewis, Clark H.)
- Mark, Herman (see Sommers, Ralph D.)
- and Mirtich, Michael J. Comments on "Effect of microparticle impact on the optical properties of metals" (TC) 1499
- Sommers, Ralph D. and Mirtich, Michael J. Effect on surface thermal properties of calibrated exposure to micrometeoroid environment 1811
- Marshall, Billy W. Oxidation and ablation characteristics of tantalum in a hyperthermal environment 1899
- Marston, Charles H. MHD accelerator performance for specified interaction parameter (TN) 2078
- Martellucci, A., Trucco, H., and Agnone, A. Measurements of the turbulent near wake of a cone at Mach 6 385
- Martin, Frederick H. Closed-loop near-optimum steering for a class of space missions 1920
- Martin, J. D. (see Robertson, J. M.)
- Marvin, Joseph G. and Deiwert, George S. Convective heat transfer in planetary gases (TN) 727
- Maxman, Gerald A. Comment on "Regression rates of metalized hybrid fuel systems" (TC) 956
- Massey, B. S. and Clayton, B. R. Comment on "Extensions of the Falkner-Skan similar solutions to flows with surface curvature" (TC) 1149
- Massier, P. F. (see Back, L. H.)
- Mastrup, F. N. (see Goldstein, R.)
- Mates, Robert E. (see Bohachevsky, Ihor O.)
- Mathews, B. E. (see Keefer, D. R.)
- Matthiesen, R. B. (see Verette, Ralph M.)
- Mayer, E. and Divoky, D. Correlation of intermittency with preferential transport of heat and chemical species in turbulent shear flows 1995
- Mayers, J. (see Hoff, Nicholas J.)
- McAlevy, Robert F., III (see Hansel, James G.)

- McBride, J. M. (see Reardon, F. H.)
- McCauley, W. D., Saydah, Alan R., and Bueche, J. F. Effect of spherical roughness on hypersonic boundary-layer transition. . . . . 2142
- McClure, F. T., Cantrell, R. H., and Hart, R. W. Theoretical considerations relating to the effect of injector design on unstable burning of liquid propellant rocket motors. . . . . 84
- McCroskey, W. J. and McDougall, J. G. Shock wave shapes on a sharp flat plate in rarefied hypersonic flow (TN). . . . . 184
- Bogdonoff, S. M., and McDougall, J. G. An experimental model for the sharp flat plate in rarefied hypersonic flow. . . . . 1580
- McCue, Gary A. A note concerning the effective emittance of certain grooved surfaces (TN). . . . . 721
- McCune, James (see Locke, Edward V.)
- McDonel, James D. (see Tabakoff, Widen)
- McDougall, J. G. (see McCroskey, W. J.)
- McElman, John A., Mikulas, Martin M., Jr., and Stein, Manuel. Static and dynamic effects of eccentric stiffening of plates and cylindrical shells. . . . . 887
- McIntyre, John E. Neighboring optimal terminal control with discontinuous forcing functions. . . . . 141
- McRuer, D. T. (see Stapleford, R. L.)
- Mehan, R. L., Sutton, W. H., and Herzog, J. A. A review of the methods of measuring the strength of whiskers and their role in reinforcing ductile metal matrices (SA). . . . . 1889
- Mehta, Pravin K. and Davids, Norman. A direct numerical analysis method for cylindrical and spherical elastic waves. . . . . 112
- Meirovitch, L. and Wallace, F. B., Jr. On the effect of aerodynamic and gravitational torques on the attitude stability of satellites. . . . . 2196
- Menard, W. A. (see Thomas, G. M.)
- Merritt, David L. (see Blankenship, Victor D.)
- Mesall, John. Numerical solutions of nonlinear equations for shells of revolution (TN). . . . . 2041
- Messerie, H. K. (see Armstrong, J. F.)
- Michels, C. J., Heighway, J. E., and Johansen, A. E. Analytical and experimental performance of capacitor powered coaxial plasma guns. . . . . 823
- Miele, Angelo (see Lusty, Arthur H., Jr.)
- Mikesell, R. D. Length scale of separated turbulent boundary layers in compression corners (TN). . . . . 1482
- Mikulas, Martin M., Jr. (see McElman, John A.)
- Miles, John W. Newtonian flow over a stationary body in unsteady flow. . . . . 38
- and Mirels, H., and Wang, H. E. Time required for establishing detached bow shock (TN). . . . . 1127
- Miller, David B. and Bethke, George W. Cyclotron resonance thruster design techniques. . . . . 835
- Miller, Eugene. Hybrid rocket combustion regression rate model (TN). . . . . 752
- Miller, John J. (see Wilson, Sam W., Jr.)
- Milligan, Mancil W. Low-density gas flow in long tubes (TN). . . . . 745
- Milligan, Roger, Gerard, George, and Lakshminathan, C. General instability of orthotropically stiffened cylinders under axial compression. . . . . 1906
- Minardi, John. Effect of variations in the coefficient of thermal expansion upon thermal stress (TN). . . . . 542
- Mirels, Harold and Mullen, J. F. Errata: "Aerodynamic blast simulation in hypersonic tunnels" (TC). . . . . 768
- and King, William S. Series solutions for shock-tube laminar boundary layer and test time. . . . . 782
- (see Miles, J. W.)
- (see Lewellen, W. S.)
- Mirtich, Michael J. (see Mark, Herman)
- Mitchner, M. (see Schweitzer, S.)
- Mohan, John J. (see Denham, Walter F.)
- Moretti, Gino. Some comments about three-dimensional supersonic flow computations (TC). . . . . 1695
- and Abbott, Michael. A time-dependent computational method for blunt body flows. . . . . 2136
- Morris, James C., Bach, Gale R., Krey, Rhoda U., Liebermann, Richard W., and Yos, Jerrold M. Continuum radiated power for high-temperature air and its components. . . . . 1223
- Morrisette, E. Leon. Effect of mass injection into a cavity on hypersonic boundary-layer transition (TN). . . . . 1488
- Mortimer, Richard W. (see Chou, Pei Chi)
- Moyer, H. Gardner. Necessary conditions for optimal single impulse transfer. . . . . 1405
- Mullen, J. F. (see Mirels, Harold)
- Muntz, E. P. and Softley, E. J. A study of laminar near wakes. . . . . 961
- Murphy, Charles H. Slender body estimates for two cubic aerodynamic damping moments (TN). . . . . 536
- Muzzy, R. J. (see Wooldridge, C. E.)
- Myers, George H. Selection of data weights for determining orbits with biased sensors (TN). . . . . 705
- Myers, T. W. Approximation to the electrical conductivity of a magnetically balanced arc in transverse argon flow (TN). . . . . 1459
- Myint-U, T. Stability of axially compressed core-filled cylinders (TN). . . . . 552
- Na, Tsung Yen. Reply by author to A. N. Tifford (TC). . . . . 573
- Nanda, Kul Deepak. Nonequilibrium flow past an infinite corrugated cylinder (TN). . . . . 1457
- Nanevitz, J. E. (see Capener, E. L.)
- Nash, J. F. Comments on "Review of recent developments in turbulent supersonic base flow" (TC). . . . . 574
- Navaratna, Dharendra R. Natural vibrations of deep spherical shells (TN). . . . . 2056
- Computation of stress resultants in finite element analysis (TN). . . . . 2058
- (see Stricklin, James A.)
- Nayfeh, Ali Hasan. Comments on "An analytic solution for entry into planetary atmospheres" (TC). . . . . 758
- Oscillating two-phase flow through a rigid pipe (TN). . . . . 1868
- Nelson, James R. (see Robison, William C.)
- Nemat-Nasser, S., Prasad, S. N., and Herrmann, G. Destabilizing effect of velocity-dependent forces in nonconservative continuous systems. . . . . 1276
- and Herrmann, G. Adjoint systems in nonconservative problem of elastic stability (TN). . . . . 2221
- Nerem, Robert M. An approximate analysis of thermal conduction and radiative transport in the stagnation-point shock layer (TN). . . . . 539
- Atomic line radiation in equilibrium air (TN). . . . . 1485
- Nerheim, N. M. (see Kelly, A. J.)
- Nesbit, Richard A. (see LeMay, Joseph L.)
- Nettleton, Michael Arthur. Heat transfer to particles in shock-heated gases (TN). . . . . 939
- Newton, R. A. Free vibrations of rocket nozzles (TN). . . . . 1303
- Nicoll, W. B. and Escudier, M. P. Empirical relationships between the shape factors  $H_{12}$  and  $H_{13}$  for uniform-density turbulent boundary layers and wall jets (TN). . . . . 940
- Nissel, Neil (see Vafakos, William P.)
- Nixon, Alan C. (see Hawthorn, Robert D.)
- Noeske, H. O. and Glass, J. C. Experimental investigation of bi-propellant arc (TN). . . . . 716
- Nunn, R. H. (see Ormsbee, A. I.)
- Oates, Gordon C. (see Goldstein, Raymond)
- Obremski, H. J. (see Wolf, L. Jr.)
- O'Connor, T. J., Comfort, E. H., and Cass, L. A. Turbulent mixing of an axisymmetric jet of partially dissociated nitrogen with ambient air. . . . . 2026
- Oden, J. T. Calculation of geometric stiffness matrices for complex structures (TN). . . . . 1480
- Olfe, D. B. Radiative cooling in transparent shock layers of wedges and cones. . . . . 1734
- Olson, Mervyn D. and Fung, Y. C. Supersonic flutter of circular cylindrical shells subjected to internal pressure and axial compression. . . . . 858
- Olson, N. Thomas and Smith, Harold P., Jr. Yield and angular distribution of cesium sputtered copper using a radioactive tracer technique. . . . . 916
- Oppenheim, A. K. (see Busch, C. W.)
- Orlik-Rückemann, Kazimierz J. Stability derivatives of sharp wedges in viscous hypersonic flow. . . . . 1001
- (see Kind, R. J.)
- Effect of wave reflections on the unsteady hypersonic flow over a wedge (TC). . . . . 1884
- Ormsbee, A. I., Gardner, R. E., Rott, N., and Nunn, R. H. Thrust magnitude control for a solid rocket by injection at the throat (TN). . . . . 1424
- Page, R. H. and Hill, W. G., Jr. Location of transition in a free jet region (TN). . . . . 944
- Palamara, Ronald D. Some considerations for a simplified orbiting general relativity experiment. . . . . 1036
- Pallabazzer, Rodolfo. Magnetoplastic effect in non-Newtonian fluids (TN). . . . . 2064
- Pao, H. P. and Chang, C. C. Magnetohydrodynamic boundary layer between parallel streams of different magnetic fields and temperatures. . . . . 1313
- Parks, Jean M., Ablow, C. M., and Wise, Henry. Temperature distribution within a particle during evaporation. . . . . 1032
- Parks, P. C. A stability criterion for panel flutter via the second method of Liapunov (TN). . . . . 175
- Pasiuk, Lionel (see Perry, James C.)
- (see Raat, Jan)
- Pate, Samuel R. and Groth, Eric E. Boundary-layer transition measurements on swept wings with supersonic leading edges (TN). . . . . 737
- Patrick, Richard M. and Schneiderman, Arthur M. Performance characteristics of a magnetic annular arc. . . . . 283
- (see Schneiderman, Arthur M.)
- Paul, B. Mohr's circle as a phase transformation. . . . . 2253
- Pearson, G. S. and Sutton, D. Ignition of composite propellant fuels by perchloric acid vapor (TC). . . . . 954
- Pearson, H. Comment on "Choked flow: A generalization of the concept and some experimental data" (TC). . . . . 1502
- Penfold, A. S. (see Seemann, G. R.)
- Penning, Francis A. (see Thurston, Gaylen A.)
- Perry, James C. and Pasiuk, Lionel. A comparison of solutions to a blunt body problem (TN). . . . . 1425
- Peakin, Richard L. and Wise, Henry. A theory for ignition and deflagration of fuel drops. . . . . 1646
- Petersen, Eugene E. (see Friedly, John C.)
- Petrie, Stuart L. Density measurements with electron beams (TN). . . . . 1679
- Pfeiffer, C. G. A technique for optimal final value control of powered flight trajectories. . . . . 352
- Pfender, E. and Cremers, C. J. Reply by authors to P. G. Simpkins (TC). . . . . 191
- (see Cremers, C. J.)
- Pian, Theodore H. H. (see Stricklin, James A.)
- Pierce, David A., and Standish, E. Myles, Jr. Family of consecutive collision earth-to-moon trajectories (TN). . . . . 709
- Pines, Samuel (see Denham, Walter F.)
- Pister, Karl S. and Evans, Roger J. Stress analysis for elastic response of physically nonlinear solid propellants. . . . . 1914
- Pitkin, Edward T. Integration with universal variables. . . . . 531
- Placek, Frank J. (see Bateman, Richard E.)
- Platzler, Max F. (see Hoffman, Gilbert H.)
- and Hoffman, Gilbert H. Supersonic quasi-slender body theory for slowly oscillating bodies (TN). . . . . 1693
- Polak, Arnold. Note on the solution of the force of slender delta wings (TN). . . . . 556
- Polymeropoulos, Constantine E. and Gebhart, Benjamin. Stability of free convection flow over a vertical uniform flux plate (TN). . . . . 2066
- Porter, R. W. and Cambel, Ali Bulent. Comment on "Magnetohydrodynamic-hypersonic viscous and inviscid flow near the stagnation point of a blunt body" (TC). . . . . 952
- Potter, J. Leith (see Whitfield, Jack D.)
- Powers, Sidney A. Asymptotic Mach numbers in a real gas (TC). . . . . 1886

- Prabhu, A. Incompressible wake flow in pressure gradient (TN).... 925
- Prasad, S. N. (see Nemat-Nasser, S.)
- Price, C. F. (see Smoot, L. D.)
- Price, E. W., Bradley, H. H., Jr., Dehority, G. L., and Ibricic, M. M. Theory of ignition of solid propellants (SA)..... 1153
- Pringle, Ralph, Jr. On the stability of a body with connected moving parts..... 1395
- Przemieniecki, J. S. Equivalent mass matrices for rectangular plates in bending (TN)..... 940
- Psarouthakis, John. Thermionic energy conversion using barium plus cesium vapors..... 1201
- Errata: "Thermionic energy conversion using barium plus cesium vapors" (TC)..... 2080
- Raat, Jan and Pasiuk, Lionel. Rarefaction effects in hypersonic boundary layers (TN)..... 2052
- Radbill, John R. Computation of electrostatic probe characteristics by quasilinearization..... 1195
- Rasmussen, Maurice L. and Karamcheti, Krishnamurty. Viscous effects far downstream in a slowly expanding hypersonic nozzle..... 807
- Rastogi, R. P. and Kishore, K. Mechanism of combustion of liquid rocket propellants: Aliphatic alcohols and mixed acid (TN)..... 1083
- Rauch, H. E. (see Breakwell, J. V.)
- Ravera, Robert J. (see Beer, Ferdinand P.)
- Raymond, L. and Charvat, F. R. Tungsten single crystal sheet..... 895
- Reardon, F. H., McBride, J. M., and Smith, A. J., Jr. Effect of injection distribution on combustion stability..... 506
- Revell, James D. and Rodden, William P. Remarks on numerical solutions of the unsteady lifting surface problem (TN)..... 156
- Richards, B. E. and Stollery, J. L. Further experiments on transition reversal at hypersonic speeds (TN)..... 2224
- Richmond, J. Kenneth and Goldstein, Raymond. Fully developed turbulent supersonic flow in a rectangular channel..... 1331
- (see Goldstein, Raymond)
- Riley, M. B. (see Whitney, J. M.)
- Riley, W. C. (see Kendall, E. G.)
- Robbins, Howard M. An analytical study of the impulsive approximation..... 1417
- Robe, T. R. (see Kane, T. R.)
- Roberts, Richard. On a Green's function for plate bending (TN)..... 178
- Robertson, J. M. and Martin, J. D. Turbulence structure near rough surfaces (TN)..... 2242
- Robison, William C. and Nelson, James R. Comments on "Choked flow: A generalization of the concept and some experimental data" (TC)..... 1309
- Rodden, William P. (see Revell, James D.)
- Rogers, P. W. (see Wilson, P. E.)
- Rohatgi, Vijay K. Interaction of high-density plasma with hot cathode (TN)..... 1852
- Romig, Mary F. Errata: "Physics of meteor entry" (TC)..... 191
- Rosen, B. Walter (see Dow, Norris F.)
- Rosenbaum, Harold (see Edelman, Raymond)
- Turbulent compressible boundary layer on a flat plate with heat transfer and mass diffusion..... 1548
- Rosensweig, Ronald E. Fluidmagnetic buoyancy..... 1751
- Rosenzweig, M. L. (see Lewellen, W. S.)
- Roshko, Anatol and Thomke, Gerald J. "Observations of turbulent reattachment behind an axisymmetric downstream-facing step in supersonic flow"..... 975
- and Thomke, Gerald J. Errata: "Observations of turbulent reattachment behind an axisymmetric downstream-facing step in supersonic flow" (TC)..... 2257
- Rosner, Daniel E. Sensitivity of a downstream Langmuir probe to rocket chamber condition (TN)..... 706
- Ross, Bernard. An analog study of the thermal buckling behavior of thin cylindrical shells (TN)..... 1437
- Ross, D. H. (see Lewellen, W. S.)
- Ross, Edward W., Jr. Comment on "Computer analysis of asymmetric free vibrations of ring-stiffened orthotropic shells of revolution" (TC)..... 1310
- Rosser, Willis A., Jr., Inami, S. Henry, and Wise, Henry. Thermal diffusivity of ammonium perchlorate..... 663
- Fishman, Norman and Wise, Henry. Ignition of simulated propellants based on ammonium perchlorate..... 1615
- Rossetto, John N. An asymptotic analysis for large deflections of pressurized shallow spherical membrane shells (TN)..... 1121
- Rott, N. (see Ormsbee, A. I.)
- Roy, Jyotirmoy Sinha. Elastic-viscous fluid flow past a porous, circular cylinder (TN)..... 1443
- Rubin, Ephraim L. (see Bohachevsky, Ibor O.)
- Russo, Anthony L., Hall, J. Gordon, and Lordi, John A. Measurement of nonequilibrium static pressures in nozzle flows of dissociated hydrogen (TN)..... 741
- Ryan, N. W. (see Keller, J. A.)
- (see Beckstead, M. W.)
- Saiva, G. (see Beaton, R. H.)
- Sanderson, R. J. Effect of boundary-layer growth on tailored interface operation of a shock tunnel (TN)..... 1461
- Santy, Myrri J. (see Blumenthal, Jack L.)
- Sarpkaya, Turgut. Separated flow about lifting bodies and impulsive flow about cylinders..... 414
- Sasman, Philip K. and Cresci, Robert J. Compressible turbulent boundary layer with pressure gradient and heat transfer..... 19
- Saydah, Alan R. (see Fogaroli, Richard P.)
- (see McCauley, W. D.)
- Schapery, R. A. and Cantey, D. E. Thermomechanical response studies of solid propellants subjected to cyclic and random loading
- Schapper, Richard L. Enthalpy and density fluctuations in high-speed wakes (TN)..... 255
- Statistics of high-speed turbulent wake boundaries..... 1979
- Schlack, A. L. (see Kessel, P. G.)
- Schlecht, Richard G. (see Church, Charles H.)
- Schlegel, Leo B. Contribution of earth oblateness to gravity torque on a satellite (TN)..... 2075
- Schneiderman, Arthur M. (see Patrick, Richard M.)
- and Patrick, Richard M. Optimization of the thermal efficiency of the magnetic annular arc (TN)..... 1836
- Schneiderman, S. B. Comment on "Transport properties of hydrogen" (TC)..... 959
- Schuerch, H. Prediction of compressive strength in uniaxial boron fiber-metal matrix composite materials..... 102
- Schuyler, Frederick L. and Torda, T. Paul. An aerothermochemical analysis of solid propellant combustion..... 2171
- Schwartz, David B. (see Crawford, Robert F.)
- Schweitzer, S. and Mitchner, M. Electrical conductivity of partially ionized gases..... 1012
- and Mitchner, M. Errata: "Electrical conductivity of partially ionized gases" (TC)..... 1888
- Schwimmer, H. Suzanne (see Smith, Myron C.)
- Sebacher, Daniel I. Flow visualization using an electron-beam afterglow in  $N_2$  and air (TN)..... 1858
- Sedney, R. (see Spurk, J. H.)
- Seemann, G. R., Thornton, J. A., and Penfold, A. S. Experimental study of a traveling-wave accelerator (TN)..... 1870
- Segars, Ronald A. (see Hoge, Harold J.)
- Seiff, Alvin and Tauber, Michael E. Optimum conical bodies for grazing hyperbolic entry..... 61
- Sforza, P. M., Steiger, M. H., and Trentacoste, N. Studies on three-dimensional viscous jets..... 800
- Sheffield, Charles. Linearized solutions for a circular orbit perturbed by tesseral harmonics..... 688
- Sheldahl, Robert E. (see Winkler, Ernest L.)
- Shelley, P. E. (see Jordan, P. F.)
- Shelton, Samuel V. and Carlson, Walter O. Variable collision cross-section effects on electrical conductivity (TN)..... 1676
- Sheppard, L. M. (see Lee, D. H.)
- Sherman, Bernard C. and Graham, John D. Coning motion of a spinning rigid body with slowly varying inertias (TN)..... 1467
- Sherman, Martin P. (see Grey, Jerry)
- Sherman, P. M. (see Crist, S.)
- Shi, Yun Y. and Eckstein, Martin C. Ascent or descent from satellite orbit by low thrust..... 2203
- Shulman, Yechiel (see Feldt, Walter T.)
- Sichel, Martin. A hydrodynamic theory for the propagation of gaseous detonations through charges of finite width..... 264
- and David, T. S. Transfer behind detonations in  $H_2-O_2$  mixtures (TN)..... 1089
- Simmonds, J. G. Comments on "In-plane vibration of spinning disks" (TC)..... 380
- Simpkins, P. G. Comment on "Steadiness of a plasmajet" (TC)..... 190
- Singer, Josef. Buckling of clamped conical shells under external pressure..... 328
- Sirignano, W. A. (see Crocco, L.)
- Slaughter, J. I. (see Kendall, E. G.)
- Slick, E. M. (see Wilson, P. E.)
- Smetana, Frederick O. (see Carley, C. T., Jr.)
- Smith, A. J., Jr. (see Reardon, F. H.)
- Smith, A. M. and Hassan, H. A. Nongray radiation effects on the hypersonic boundary layer over a flat plate (TN)..... 1840
- Smith, A. M. O. and Jaffe, N. A. General method for solving the laminar nonequilibrium boundary-layer equations of a dissociating gas..... 611
- Smith, A. W. (see Criscione, J. M.)
- Smith, C. Edward, Kramer, Ray L., and Brown, Alan C. A study of the laminar near-wake behind a cylinder at Mach 20..... 1187
- Smith, Gary C. (see Bollinger, Loren E.)
- Smith, Harold P., Jr. (see Olson, N. Thomas)
- Smith, Myron C., Schwimmer, H. Suzanne, and Wu, Ching-Sheng. Reply by authors to R. W. Porter and A. B. Cambel (TC)..... 953
- Smoot, L. D. and Price, C. F. Regression rates of metalized hybrid fuel systems..... 910
- Snedeker, Richard S. and Donaldson, Coleman duP. Observation of a bistable flow in a hemispherical cavity (TN)..... 735
- Soffley, E. J. (see Muntz, E. P.)
- Sommers, Ralph D. and Mark, Herman. Effect of nonperfect isolation on the temperature of metal surfaces on satellites (TN)..... 1092
- (see Mark, Herman)
- Sonin, Ain A. Free-molecule Langmuir probe and its use in flowfield studies..... 1588
- Spaid, Frank W. and Zukowski, Edward E. Further experiments concerning secondary injection of gases into a supersonic flow (TN)..... 2216
- Spencer, D. J. (see Hartunian, R. A.)
- Springer, George S. and Wan, Shoung Fun. Note on the application of a moment method to heat conduction in rarefied gases between concentric spheres (TN)..... 1441
- Spurk, J. H., Gerber, N., and Sedney, R. Characteristic calculation of flowfields with chemical reactions..... 30
- Srinivasan, A. V. Steady-state response of beams supported on nonlinear springs (TN)..... 1863
- Standish, E. Myles, Jr. (see Pierce, David A.)
- Stapleford, R. L. and McRuer, D. T. Sensitivity of multiloop flight control system roots to open-loop parameter variations..... 165
- Stark, Valter J. E. On the approximation of the normal velocity on oscillating wings (TN)..... 2236
- Starks, Douglas F., Hough, Ralph L., and Golf, Linwood C. Surface finishes for boron filaments..... 1818
- Starnes, Keith E. and Grabowsky, W. R. Electron-magnetic-field interactions in the electron bombardment heated thruster (TN)..... 1090
- Stagnation point Langmuir probe measurements in an argon arc jet (TN)..... 1685
- Stear, Edwin B. (see LeMay, Joseph L.)
- Steg, Leo. AIAA Journal—Whence and whither (EDITORIAL)..... 1
- Steiger, M. H. (see Sforza, P. M.)
- Stein, Manuel (see McElman, John A.)

- Stern, Ivan. Blunt cone laminar friction drag (TN)..... 2051
- Stevens, Karl Kent. On the parametric excitation of a viscoelastic column..... 2111
- Stojanoff, Christo G. A transient fiber optics probe for space resolved diagnostics of dense plasmas..... 1766
- Stollery, J. L. (see Richards, B. E.)
- Stone, George W. Aerodynamic stability of a coasting vehicle rapidly ascending through the atmosphere..... 1560
- Strehlow, Roger A. (see Gilbert, Ralph B.)
- Stricklin, James A. Computation of stress resultants from the element stiffness matrices (TN)..... 1095
- and Navaratna, Dharendra R. and Pian, Theodore H. H. Improvements on the analysis of shells of revolution by the matrix displacement method (TN)..... 2069
- Strome, D. R. (see Jones, R. E.)
- Stuhlman, C., DeLuzio, A., and Almoth, B. O. Influence of stiffener eccentricity and end moment on stability of cylinders in compression..... 872
- Sturgess, Geoffrey J. Comment on "Prediction of adiabatic wall temperatures in film-cooling systems" (TC)..... 763
- Sugai, Iwao. On time-dependent coverage areas of comsats in elliptic orbits (TN)..... 1108
- Sutton, D. (see Pearson, G. S.)
- Sutton, W. H. (see Mehan, R. L.)
- Sve, Charles (see Humphreys, John S.)
- Svehla, Roger A. and Brokaw, Richard S. Heat capacity and the Lewis number of a reacting gas (TN)..... 182
- Swanson, Bruce W. (see Church, Charles H.)
- Sweet, A. L. (see Genin, J.)
- Tabakoff, Widen and McDonel, James D. Measurement of the heat transfer to a two-dimensional hypersonic inlet ramp (TN)..... 153
- Tang, Homer H. (see Barnes, John W.)
- Tang, Sing-chih. A solution to the Timoshenko beam under a moving force (TN)..... 711
- Tapley, B. D. and Fowler, W. T. Terminal guidance for continuous powered space vehicles (TN)..... 1683
- Tasi, James. Effect of heterogeneity on the stability of composite cylindrical shells under axial compression..... 1058
- Errata: "Effect of heterogeneity on the stability of composite cylindrical shells under axial compression" (TC)..... 2257
- Tauber, Michael E. (see Seiff, Alvin)
- (see Wilkins, Max E.)
- Tempelmeyer, K. E. End effects in a steady-state magnetohydrodynamic  $J \times B$  (TN)..... 723
- Theobald, Richard T. Comments on "Motion of re-entry vehicles during constant-altitude glide" (TC)..... 951
- Thoenes, Jurgen. Nonequilibrium flow past a circular cone including freestream dissociation (TN)..... 1447
- Thomas, G. M. and Menard, W. A. Experimental measurements of nonequilibrium and equilibrium radiation from planetary atmospheres..... 227
- Thomke, Gerald J. (see Roshko, Anatol)
- Thompson, W. P. and Hartunian, R. A. A note of caution on the use of catalytic probes (TC)..... 957
- Thomson, William T. Equations of motion for the variable mass system (TC)..... 766
- Thornton, J. A. (see Seemann, G. R.)
- Thurston, Gaylen A. and Penning, Francis A. Effect of axisymmetric imperfections on the buckling of spherical caps under uniform pressure..... 319
- Tien, C. L. and Abu-Romia, M. M. Perturbation solutions in the differential analysis of radiation interactions with conduction and convection (TN)..... 732
- Tifford, Arthur N. Comments on similarity solutions of the boundary layer near an accelerating plate (TC)..... 572
- Ting, Lu. Pressure distribution on a surface with large normal injection..... 1573
- Tirumalesa, Duvvuri. Sonic line in nonequilibrium nozzle flows (TN)..... 1464
- Tomazic, Frederick J. (see Bollinger, Loren E.)
- Tong, Henry. Effects of dissociation energy and vibrational relaxation on heat transfer..... 14
- Torda, T. Paul (see Schuyler, Frederick L.)
- Traugott, S. C. Radiative heat-flux potential for a nongrey gas (TN)..... 541
- Trentacoste, N. (see Sforza, P. M.)
- Trucco, H. (see Martellucci, A.)
- Tsai, Stephen W. and Azzì, Victor D. Strength of laminated composite materials..... 296
- Tso, W. K. On the fundamental frequency of a four point-supported square elastic plate (TN)..... 733
- Tsou, F. K. (see Goldstein, R. J.)
- Tuba, I. S. Compatibility equations for arbitrary orthogonal curvilinear coordinates (TC)..... 1695
- Ueng, C. E. S. and Lin, Y. J. On bending of orthotropic sandwich plates (TN)..... 2241
- Uherka, K. L. (see Gardner, R. A.)
- Ungar, E. E. and Carbonell, J. R. On panel vibration damping due to structural joints..... 1385
- Vafakos, William P., Nissel, Neil, and Kempner, Joseph. Pressurized oval cylinders with closely spaced rings..... 338
- Van Atta, Charles (see Coles, Donald)
- VanDyke, Peter. Reply by author to A. Kornecki (TC)..... 765
- Nonlinear influence coefficients for a spherical shell with pressure loading (TN)..... 2045
- Tension shell as a membrane (TN)..... 2239
- Verette, Ralph M. and Matthiesen, R. B. Eccentric discontinuities in unsymmetrically loaded shells of revolution (TN)..... 1680
- Verniani, Franco. Comments on "Physics of meteor entry" (TC)..... 383
- Volk, H. F. (see Criscione, J. M.)
- Wadhwa, R. P. (see Brauch, D. F.)
- Wagner, Richard D., Jr. (see Henderson, Arthur, Jr.)
- Wallace, F. B., Jr. (see Meirowitch, L.)
- Walter, R. J. and Chandler, W. T. Compatibility of tantalum and columbium alloys with hydrogen..... 302
- Waldbusser, E. Geometry of the near wake of pointed and blunt hypersonic cones (TN)..... 1874
- Wallace, F. B., Jr. (see Meirowitch, L.)
- Wan, Shoung Fun (see Springer, George S.)
- Wang, H. E. Reply by author to R. T. Theobald (TC)..... 952
- (see Miles, J. W.)
- Wang, K. C. Comments on "Criteria for self-similar solutions to radiative flow" (TC)..... 1887
- Wang, Leon Ru-Liang. Effects of edge restraint on the stability of spherical caps (TN)..... 718
- Watson, R. (see Hanson, R. K.)
- Watson, Ralph D. (see Henderson, Arthur, Jr.)
- Wazzan, Ahmed R. Reply by author to J. F. Nash (TC)..... 575
- Weinbaum, Sheldon. Rapid expansion of a supersonic boundary layer and its application to the near wake..... 217
- (see Weiss, Robert F.)
- Weiss, Robert F. and Weinbaum, Sheldon. Hypersonic boundary-layer separation and the base flow problem..... 1321
- Base pressure of slender bodies in laminar, hypersonic flow..... 1557
- Westkaemper, John C. Step-induced boundary-layer separation phenomena (TC)..... 1147
- Weston, Kenneth C. An alternate analysis of momentum deposition in the wake of a re-entry vehicle (TC)..... 956
- Wang, Y. C. Radiative transfer for parallel streams of radiating gases (TN)..... 1451
- White, J. E. Development of oxidation resistant tungsten-base alloys..... 307
- White, Robert A. Effect of sudden expansions or compressions on the turbulent boundary layer (TN)..... 2232
- Whitfield, Jack D. and Potter, J. Leith. Comment on "Base pressure measurements on sharp and blunt  $9^\circ$  cones at Mach numbers from 3.50 to 9.20" (TC)..... 2254
- Whitman, A. M. (see Barkan, P.)
- Whitney, J. M. and Riley, M. B. Elastic properties of fiber reinforced composite materials..... 1537
- Widnall, Sheila E. (see Dowell, Earl H.)
- Wilkins, Max E. and Tauber, Michael E. Boundary-layer transition on ablating cones at speeds up to 7 km/sec..... 1344
- Williams, F. A. Theory of propellant ignition by heterogeneous reaction..... 1354
- Williams, Ivan J. (see Coffey, Thomas C.)
- Williams, Peter M. (see Grey, Jerry)
- Willoughby, P. G. (see Crowe, C. T.)
- Wilson, L. N. Body-shape effects on axisymmetric wakes: Transition..... 1741
- Wilson, P. E., Rogers, P. W., Dharmarajan, S. N., and Slick, E. M. Pseudononlinear bending analysis of an orthotropic multicell shell structure..... 2096
- Wilson, Sam W., Jr. and Miller, John J. Matching planetocentric and heliocentric low-acceleration trajectories (TN)..... 932
- Winemiller, A. F. (see MacNeal, R. H.)
- Winkler, Ernest L. and Sheldahl, Robert E. Influence of calorimeter surface treatment on heat-transfer measurements in arc-heated test streams (TN)..... 715
- Wise, Henry (see Rosser, Willis A., Jr.)
- (see Parks, Jean M.)
- (see Peskin, Richard L.)
- Wolf, L., Jr., Obreski, H. J., Christian, W. J. Transpiration cooling in an arc-jet environment (TN)..... 747
- Wolf, Randolph J. Electrode effects in a seeded plasma..... 2155
- Wolf, C. L. (see Kastner, S. O.)
- Wolnik, S. J. (see Gannon, R. E.)
- Woodcock, Robert I. Comments on "Phugoid oscillations at hypersonic speeds" (TC)..... 762
- Woodruff, Lawrence W. and Lorenz, George C. Hypersonic turbulent transpiration cooling including downstream effects..... 969
- Woodruff, C. E. and Muzzy, R. J. Boundary-layer turbulence measurements with mass addition and combustion..... 2009
- Wortman, Andrzej. Comments on "Simplified solutions for ablation in a finite slab" (TC)..... 760
- Wu, Ching-Sheng (see Smith, Myron C.)
- Yamanaka, Tatsuo. Mass effect on blast wave theory (TN)..... 2047
- Yasuhara, Michiru. Hypersonic self-similarity of barrel shock in source-type free jets (TN)..... 1102
- Yates, E. Carson, Jr. A kernel-function formulation for nonplanar lifting surfaces oscillating in subsonic flow (TN)..... 1486
- Yen, K. T. Effect of turbulence intermittency on the scattering of electromagnetic waves by underdense plasmas (TN)..... 154
- Yogananda, C. V. (see Iyengar, K. T. Sundara Raja)
- Yos, Jerrold M. (see Morris, James C.)
- Yu, C. P. and Lykoudis, P. S. Spherical blast waves in a weak dipole magnetic field (TN)..... 945
- Zakkay, Victor and Cresci, Robert J. An experimental investigation of the near wake of a slender cone at  $M_\infty = 8$  and 12..... 41
- Zarin, Neil A. Base pressure measurements on sharp and blunt  $9^\circ$  cones at Mach numbers from 3.50 to 9.20 (TN)..... 743
- Reply by author to J. D. Whitfield and J. L. Potter (TC)..... 2254
- Zaslavsky, Elaine G. (see Hooker, William W.)
- Zelberg, Seymour L. Similar laminar boundary layer with large injection (TN)..... 157
- Comments on "Similar laminar boundary layer with large injection" (TC)..... 2080
- Zerlaut, Gene A. and Krupnick, A. C. An integrating-sphere reflectometer for the determination of absolute hemispherical spectral reflectance..... 1227
- Zinman, Walter G. Comment on experimental precursor studies (TN)..... 2073
- Zukoski, Edward E. (see Spaid, Frank W.)

## SUBJECTS

## AERODYNAMICS

- Aerodynamic properties of some simple bodies in the hypersonic transition regime. G. A. Bird..... 55
- Aerodynamic stability of a coasting vehicle rapidly ascending through the atmosphere. George W. Stone..... 1560
- Hypersonic minimum-drag slender bodies of revolution. Martin R. Fink..... 1717
- Improved numerical procedure for harmonically deforming lifting surfaces from the supersonic kernel function method. Herbert J. Cunningham..... 1961
- On the effect of aerodynamic and gravitational torques on the attitude stability of satellites. L. Meirovitch and F. B. Wallace Jr..... 2196
- Remarks on numerical solutions of the unsteady lifting surface problem. James D. Revell and William P. Rodden (TN)..... 156
- Slender body estimates for two cubic aerodynamic damping moments. Charles H. Murphy (TN)..... 536
- Note on the solution of the force of slender delta wings. Arnold Polak (TN)..... 556
- Boundary-layer transition measurements on swept wings with super-sonic leading edges. Samuel R. Pate and Eric E. Groth (TN)..... 737
- Base pressure measurements on sharp and blunt 9° cones at Mach numbers from 3.50 to 9.20. Neil A. Zarin (TN)..... 743
- A spherically blunted cone at angle of attack. Clark H. Lewis and Eugene C. Knox (TN)..... 1110
- Solidification principle for nonuniformly spinning rotors mounted on a moving vehicle. R. N. Bhattacharya (TN)..... 1118
- Oblique blast impingement on slender hypersonic bodies. G. R. Inger (TN)..... 1475
- A kernel-function formulation for nonplanar lifting surfaces oscillating in subsonic flow. E. Carson Yates Jr. (TN)..... 1486
- On the approximation of the normal velocity on oscillating wings. Valter J. E. Stark (TN)..... 2236
- Erratum: Effect of cone angle and bluntness ratio on base pressure. John M. Cassanto (TC)..... 384
- Comments on "Phugoid oscillations at hypersonic speeds." Robert J. Woodcock (TC)..... 762
- Reply by authors to R. J. Woodcock. E. V. Laitone and Y. S. Chou (TC)..... 763
- Comment on "Base pressure measurements on sharp and blunt 9° cones at Mach numbers from 3.50 to 9.20." Jack D. Whitfield and J. Leith Potter (TC)..... 2254
- Reply by author to J. D. Whitfield and J. L. Potter. Neil A. Zarin (TC)..... 2254

## ELECTRONICS

- Sensitivity of multiloop flight control system roots to open-loop parameter variations. R. L. Stapleford and D. T. McRuer..... 1655

## FACILITIES, RESEARCH, AND SUPPORT

- Driver gas detection in a shock tunnel. Henry W. Ball (TN)..... 1111
- A large dielectric vacuum facility. Robert G. Jahn and Kenn E. Clark (TN)..... 1135
- Errata: "Aerodynamic blast simulation in hypersonic tunnels." H. Mirels and J. F. Mullen (TC)..... 768

## FLUID MECHANICS

- A review of hypersonic wake studies. Paul S. Lykoudis (SA)..... 577
- Compressible turbulent boundary layer with pressure gradient and heat transfer. Philip K. Saaan and Robert J. Cresci..... 19
- Numerical integration of flow equations along natural coordinates. Pei Chi Chou and Richard W. Mortimer..... 26
- Characteristic calculation of flowfields with chemical reactions. J. H. Spurk, N. Gerber, and R. Sedney..... 30
- Newtonian flow over a stationary body in unsteady flow. John W. Miles..... 38
- An experimental investigation of the near wake of a slender cone at  $M_\infty = 8$  and 12. Victor Zakay and Robert J. Cresci..... 41
- Experiments on transition regime flow through a short tube with a bellmouth entry. C. T. Carley Jr. and Frederick O. Smetana..... 47
- Some experiments on Delta wings in hypersonic flow. Edward A. Barber..... 72
- Velocity profiles in turbulent compressible boundary layers. Paolo O. Baronti and Paul A. Libby..... 193
- A bimodal approximation for reacting turbulent flows: I. Description of the model. Shao-Chi Lin..... 202
- A bimodal approximation for reacting turbulent flows: II. Example of quasi-one-dimensional wake flow. Shao-Chi Lin..... 210
- Rapid expansion of a supersonic boundary layer and its application to the near wake. Sheldon Weinbaum..... 217
- Dynamics of a radiating gas with application to flow over a wavy wall. Ping Cheng..... 238
- A hydrodynamic theory for the propagation of gaseous detonations through charges of finite width. Martin Sichel..... 264
- Measurements of the turbulent near wake of a cone at Mach 6. A. Martellucci, H. Trucco, and A. Agnone..... 385

- An analysis of two-dimensional laminar and turbulent compressible mixing. R. C. Bauer..... 392
- Binary diffusion in a confined vortex. W. S. Lewellen, D. H. Ross, and M. L. Rosenzweig..... 396
- Use of the shock-layer approximation in the inverse hypersonic blunt body problem. H. K. Cheng and G. A. Gaitatzes..... 406
- Separated flow about lifting bodies and impulsive flow about cylinders. Turgut Sarpkaya..... 414
- Blast wave impingement on a slender wedge moving at hypersonic speeds. George R. Inger..... 428
- Numerical calculations of the transient loading of blunt obstacles by shocks in air. Thomas Daniel Butler..... 460
- Experimental studies of separated flows at hypersonic speeds. Part I: Separated flows over axisymmetric spiked bodies. Michael S. Holden..... 591
- A direct method for computation of nonequilibrium flows with detached shock waves. Ihor O. Bohachevsky and Ephraim L. Rubin..... 600
- Generalized aerodynamic forces on an oscillating cylindrical shell: Subsonic and supersonic flow. Earl H. Dowell and Sheila E. Widnall..... 607
- General method for solving the laminar nonequilibrium boundary-layer equations of a dissociating gas. A. M. O. Smith and N. A. Jaffe..... 611
- Duct-flow of conducting fluids under arbitrarily oriented applied magnetic fields. Arsev H. Eraslan..... 620
- Panel instability caused by oblique shock waves. C. H. Ellen..... 680
- A direct method for calculation of the flow about an axisymmetric blunt body at angle of attack. Ihor O. Bohachevsky and Robert E. Mates..... 776
- Series solutions for shock-tube laminar boundary layer and test time. Harold Mirels and William S. King..... 782
- Experimental studies of separated flows at hypersonic speeds. Part II: Two-dimensional wedge separated flow studies. Michael S. Holden..... 790
- Studies on three-dimensional viscous jets. P. M. Sforza, M. H. Steiger, and N. Trentacoste..... 800
- Viscous effects far downstream in a slowly expanding hypersonic nozzle. Maurice L. Rasmussen and Krishnamurthy Karamcheti..... 807
- A study of laminar near wakes. E. P. Muntz and E. J. Softley..... 961
- Observations of turbulent reattachment behind an axisymmetric downstream-facing step in supersonic flow. Anatol Roshko and Gerald J. Thomke..... 975
- Low-frequency, large-amplitude fluctuations of the laminar boundary layer. W. S. King..... 994
- Stability derivatives of sharp wedges in viscous hypersonic flow. Kazimierz J. Orlik-Rückemann..... 1001
- Dynamics of gases containing evaporable liquid droplets under a normal shock. H. Y. Lu and H. H. Chiu..... 1008
- A study of the laminar near-wake behind a cylinder at Mach 20. C. Edward Smith, Ray L. Kramer, and Alan C. Brown..... 1187
- Hypersonic boundary-layer separation and the base flow problem. Robert F. Weiss and Sheldon Weinbaum..... 1321
- Fully developed turbulent supersonic flow in a rectangular channel. J. Kenneth Richmond and Raymond Goldstein..... 1331
- Effect of small radius of curvature on transonic flow in axisymmetric nozzles. D. F. Hopkins and D. E. Hill..... 1337
- Boundary-layer transition on ablating cones at speeds up to 7 km/sec. Max E. Wilkins and Michael E. Tauber..... 1344
- Turbulent compressible boundary layer on a flat plate with heat transfer and mass diffusion. H. Rosenbaum..... 1548
- Base pressure of slender bodies in laminar, hypersonic flow. Robert F. Weiss..... 1557
- Diffusion and decay of turbulent elliptic wakes. Yung-Huang Kuo and Lionel V. Baldwin..... 1566
- Pressure distribution on a surface with large normal injection. Lu Ting..... 1573
- An experimental model for the sharp flat plate in rarefied hypersonic flow. W. J. McCroskey, S. M. Bogdonoff, and J. G. McDougall..... 1580
- Infrared radiometry of turbulent flows. James Stark Draper..... 1597
- Mass transfer and first-order boundary-layer effects on sharp cone drag. Part I: At supersonic conditions. Clark H. Lewis, Ernest O. Marchand, and Herbert R. Little..... 1697
- Second-order theory for airfoils in uniform shear flow. C. F. Chen..... 1712
- Asymptotic solution for the viscous radiating shock layer. Odus R. Burggraf..... 1725
- Body-shape effects on axisymmetric wakes: Transition. L. N. Wilson..... 1741
- Theory of detonation initiation behind reflected shock waves. Ralph B. Gilbert and Roger A. Strehlow..... 1777
- Mass transfer and first-order boundary-layer effects on sharp cone drag. Part II: At hypersonic conditions. Clark H. Lewis, Ernest O. Marchand, and Herbert R. Little..... 1954
- Progress report on a digital experiment in spiral turbulence. Donald Coles and Charles Van Atta..... 1969
- Turbulence structure in free shear layers. P. O. A. L. Davies..... 1971
- Statistics of high-speed turbulent wake boundaries. Richard L. Schapker..... 1979
- Interferometric analysis of density fluctuations in hypersonic turbulent wakes. Hwachil Lien and Jerome Eckerman..... 1988
- Correlation of intermittency with preferential transport of heat and chemical species in turbulent shear flows. E. Mayer and D. Divoky..... 1995
- Stochastic model for turbulent, reacting wakes. W. E. Gibson..... 2001
- Turbulent mixing of an axisymmetric jet of partially dissociated nitrogen with ambient air. T. J. O'Connor, E. H. Comfort, and L. A. Cass..... 2026
- Fluid dynamic studies to  $M = 41$  in helium. Arthur Henderson Jr., Ralph D. Watson, and Richard D. Wagner Jr..... 2117

- Equilibrium air radiation from shock layers at 11.3 km/sec. David M. Cooper. . . . . 2125
- Bodies of maximum lift-to-drag ratio in hypersonic flow. Arthur H. Lusty Jr. and Angelo Miele. . . . . 2130
- A time-dependent computational method for blunt body flows. Gino Moretti and Michael Abbett. . . . . 2136
- Effect of spherical roughness on hypersonic boundary-layer transition. W. D. McCauley, A. R. Saydah, and J. F. Bueche. . . . . 2142
- Ionization behind a sphere in hypersonic flight. Part I: Near-wake theory. Alan Q. Eschenroeder and Tung Chen. . . . . 2149
- Effect of turbulence intermittency on the scattering of electromagnetic waves by underdense plasmas. K. T. Yen (TN). . . . . 154
- Similar laminar boundary layer with large injection. Seymour L. Zeiberg (TN). . . . . 157
- Estimation of the strength of lip shock. Francis R. Hama (TN). . . . . 166
- Shock wave shapes on a sharp flat plate in rarefied hypersonic flow. W. J. McCroskey and J. G. McDougall (TN). . . . . 184
- A criterion for the transition between flow regimes in turbulent cavity flow. Jay Fox (TN). . . . . 364
- On supersonic flow past oscillating bodies of revolution. Gilbert H. Hoffman and Max F. Platzer (TN). . . . . 370
- Hydromagnetic wall jet. E. R. D'Sa (TN). . . . . 537
- Hypersonic flow over a delta wing of moderate aspect ratio. N. D. Malmuth (TN). . . . . 555
- Steady expansion of a gas into a vacuum. R. H. Edwards and H. K. Cheng (TN). . . . . 558
- Simplified equations for hypersonic viscous flow past slender bodies. J. A. Laurmann (TN). . . . . 568
- An inverse problem of nonequilibrium duct flow. Chong-Wei Chu (TN). . . . . 719
- Enthalpy and density fluctuations in high-speed wakes. Richard L. Schapker (TN). . . . . 725
- On the numerical solution of unsteady, laminar boundary layers. Charles L. S. Farn and Vedat S. Arpacı (TN). . . . . 730
- Observation of a bistable flow in a hemispherical cavity. Richard S. Sneider and Coleman duP. Donaldson (TN). . . . . 735
- Vortex shedding from yawed cylinders. A. R. Hanson (TN). . . . . 738
- Measurement of nonequilibrium static pressures in nozzle flows of dissociated hydrogen. Anthony L. Russo, J. Gordon Hall, and John A. Lordi (TN). . . . . 741
- Low-density gas flow in long tubes. Mancil W. Milligan (TN). . . . . 745
- Jet boundary determination of underexpanded two-phase carbon dioxide nozzle flow. Darrel G. Harden (TN). . . . . 746
- Effects of dissociation rate magnitudes and relative collision efficiencies on relaxation profiles in diatomic gases. R. K. Hanson and R. Watson (TN). . . . . 749
- Incompressible wake flow in pressure gradient. A. Prabhu (TN). . . . . 925
- A correlation of the spread and decay of turbulent free jets. Norman S. Cohen (TN). . . . . 929
- Remarks on quasilinearization applied in boundary-layer calculations. Paul A. Libby and Karl K. Chen (TN). . . . . 937
- Empirical relationships between the shape factors  $H_{21}$  and  $H_{12}$  for uniform-density turbulent boundary layers and wall jets. W. B. Nicoll and M. P. Escudier (TN). . . . . 940
- Location of transition in a free jet region. R. H. Page and W. G. Hill Jr. (TN). . . . . 944
- Hypersonic self-similarity of barrel shock in source-type free jets. Michiru Yasuhara (TN). . . . . 1102
- Gasdynamics structure of jets from plug nozzles. C. C. Lee (TN). . . . . 1114
- Time required for establishing detached bow shock. J. W. Miles, H. Mirels, and H. E. Wang (TN). . . . . 1127
- Secondary flows associated with a supersonic corner region. Paul A. Libby (TN). . . . . 1130
- An experimental study of jet turbulent mixing at subsonic-supersonic speeds. H. S. Bluston (TN). . . . . 1137
- General formulation of surface catalytic reactions. J. P. Gurney (TN). . . . . 1299
- Radiation coupled wedge flows. Martin Jiechke (TN). . . . . 1300
- Flowfield of a highly underexpanded jet impinging on a surface. D. W. Eastman and J. P. Bonnema (TN). . . . . 1302
- Visualization technique for massive blowing studies. R. A. Hartunian and D. J. Spencer (TN). . . . . 1305
- Skin-friction predictions in turbulent compressible flow. James J. Komar (TN). . . . . 1307
- A comparison of solutions to a blunt body problem. James C. Perry and Lionel Pasiuk (TN). . . . . 1425
- A class of nozzle-like exact solutions for compressible axisymmetric flow. Harold G. Elrod Jr. (TN). . . . . 1426
- Rapid calculations of boundary layers with coupled heat and mass transfer. T. K. Fannelop (TN). . . . . 1433
- Elastic-viscous fluid flow past a porous, circular cylinder. Jyotirmoy Sinha Roy (TN). . . . . 1443
- Nonequilibrium flow past a circular cone including freestream dissociation. Jurgen Thoenes (TN). . . . . 1447
- Nonequilibrium flow past an infinite corrugated cylinder. Kul Deepak Nanda (TN). . . . . 1457
- Effect of boundary-layer growth on tailored interface operation of a shock tunnel. R. J. Sanderson (TN). . . . . 1461
- Sonic line in nonequilibrium nozzle flows. Duvvuri Tirumalesa (TN). . . . . 1464
- Stability derivatives of sharp cones in viscous hypersonic flow. R. J. Kind and K. J. Orlik-Rieckemann (TN). . . . . 1469
- Length scale of separated turbulent boundary layers in compression corners. R. D. Mikesell (TN). . . . . 1482
- Transonic and low supersonic shock shape solutions. Andrew H. Jenkins, Billy Z. Jenkins, and Lloyd H. Johnson (TN). . . . . 1483
- Effect of mass injection into a cavity on hypersonic boundary-layer transition. E. Leon Morriette (TN). . . . . 1488
- The use of honeycomb for shear flow generation. Donald R. Kotansky (TN). . . . . 1490
- Total boundary-layer mass flow with mass transfer at the wall. Gary T. Chapman (TN). . . . . 1688
- An equation for the entrainment of ejectors. Harold J. Hoge and Ronald A. Segars (TN). . . . . 1689
- Supersonic quasi-slender body theory for slowly oscillating bodies. Max F. Platzer and Gilbert H. Hoffman (TN). . . . . 1693
- An approximate second-order wing theory. D. H. Lee and L. M. Sheppard (TN). . . . . 1828
- Inviscid cone flows with surface mass transfer. Jerome Aroesty and Stephen H. Davis (TN). . . . . 1830
- Equivalence of secondary injection to a blunt body in supersonic flow. Henry Tao-Sze Hsia (TN). . . . . 1832
- A simple model shear flow with blowing. George R. Inger (TN). . . . . 1834
- Strong and weak interaction parameters for turbulent flow. John W. Barnes and Homer H. Tang (TN). . . . . 1838
- Nongray radiation effects on the hypersonic boundary layer over a flat plate. A. M. Smith and H. A. Hassan (TN). . . . . 1840
- Radiation effects in the stagnation region. R. F. Chisnell (TN). . . . . 1848
- Shock wave transport effects on hypersonic leading edge flow. Richard W. Garvine (TN). . . . . 1856
- Flow visualization using an electron-beam afterglow in  $N_2$  and air. Daniel I. Sebacher (TN). . . . . 1858
- Flow separation due to jet pluming. L. J. Alpinieri and Richard H. Adams (TN). . . . . 1865
- Optimum lifting bodies in hypersonic viscous flow. W. S. Lewellen and H. Mirels (TN). . . . . 1866
- Oscillating two-phase flow through a rigid pipe. Ali Hasan Nayfeh (TN). . . . . 1868
- Geometry of the near wake of pointed and blunt hypersonic cones. E. Waldbusser (TN). . . . . 1874
- Approximate calculation of highly underexpanded jets. Edward W. Hubbard (TN). . . . . 1877
- Boundary layer over a slender parabola of revolution with fluid injection. Lorenzo M. Albacete (TN). . . . . 2040
- Hypersonic flow over a blunt flat plate with surface mass transfer. George Lee (TN). . . . . 2049
- Rarefaction effects in hypersonic boundary layers. Jan Raat and Lionel Pasiuk (TN). . . . . 2052
- A note on experimental and theoretical comparisons of conical shock-shock interactions. Victor D. Blankenship and David L. Merritt (TN). . . . . 2054
- Hypersonic slip flow past the leading edge of a flat plate. W. L. Chow (TN). . . . . 2062
- Stability of free convection flow over a vertical uniform flux plate. Constantine E. Polymeropoulos and Benjamin Gebhart (TN). . . . . 2066
- Measurement of turbulence by pressure probes. Valdimir Jezdinsky (TN). . . . . 2072
- Comment on experimental precursor studies. Walter G. Zinman (TN). . . . . 2073
- Hartree's solutions of the Falkner-Skan equation. S. N. Brown (TN). . . . . 2215
- Further experiments concerning secondary injection of gases into a supersonic flow. Frank W. Spaid and Edward E. Zukowski (TN). . . . . 2216
- Detection of oblique shocks in a conical nozzle with a circular-arc throat. L. H. Back and R. F. Cuffel (TN). . . . . 2219
- Further experiments on transition reversal at hypersonic speeds. B. E. Richards and J. L. Stollery (TN). . . . . 2224
- Direct diabatic hydraulic analogy. R. H. Beaton, G. Saiva, R. D. Archer, and R. A. A. Bryant (TN). . . . . 2229
- Effect of sudden expansions or compressions on the turbulent boundary layer. Robert A. White (TN). . . . . 2232
- Turbulence structure near rough surfaces. J. M. Robertson and J. D. Martin (TN). . . . . 2242
- Interactions within the laminar hypersonic boundary layer. Robert H. Johnson (TN). . . . . 2245
- Stanton tube calibration in a laminar boundary layer at Mach 6. John E. Lewis and Toshi Kubota (TN). . . . . 2251
- Comment on "Magnetohydrodynamic flow past a thin airfoil." Y. M. Lynn (TC). . . . . 189
- Erratum: "A single formula for the velocity distribution in the turbulent inner and outer boundary layers." Hwachii Lien (TC). . . . . 192
- Comments on "Satellite potential in an ionized atmosphere." S. H. Lam (TC). . . . . 378
- Reply by author to S. H. Lam. Norman C. Jen (TC). . . . . 378
- Comments on "Bow shock shape about a spherical nose." K. D. Korkan (TC). . . . . 381
- Comments on similarity solutions of the boundary layer near an accelerating plate. Arthur N. Tifford (TC). . . . . 572
- Reply by author to A. N. Tifford. Tsung Yen Na (TC). . . . . 573
- Comments on "Review of recent developments in turbulent supersonic base flow." J. F. Nash (TC). . . . . 574
- Reply by author to J. F. Nash. Ahmed R. Wazzan (TC). . . . . 575
- Errata: "Application of Pohlhausen's method to stagnation-point flow." R. D. Hugelmann (TC). . . . . 576
- Comments on "Calibration of Preston tubes in supersonic flow." Edward J. Hopkins and Earl R. Keener (TC). . . . . 760
- Comment on "Magnetohydrodynamic-hypersonic viscous and inviscid flow near the stagnation point of a blunt body." R. W. Porter and Ali Bulent Cambel (TC). . . . . 952
- Reply by authors to R. W. Porter and A. B. Cambel. Myron C. Smith, H. Susanne Schwimmer, and Ching-Sheng Wu (TC). . . . . 953
- An alternate analysis of momentum deposition in the wake of a re-entry vehicle. Kenneth C. Weston (TC). . . . . 956
- Displacement thickness for boundary layers with surface mass transfer. T. K. Fannelop (TC). . . . . 1142
- Reply to T. K. Fannelop. T. Y. Li (TC). . . . . 1144
- Choice of boundary conditions in viscous interaction theory. Odus R. Burggraf (TC). . . . . 1145
- Reply to O. R. Burggraf. T. K. Fannelop (TC). . . . . 1146
- Step-induced boundary-layer separation phenomena. John C. Westkaemper (TC). . . . . 1147
- Comment on "Nonequilibrium effects on high-enthalpy expansion of air." Clarence J. Harris (TC). . . . . 1148
- Comment on "Extensions of the Falkner-Skan similar solutions to

- flows with surface curvature." B. S. Massey and B. R. Clayton (TC)..... 1149
- Comment on the location of the center of pressure of a right circular cone using Newtonian impact theory. Frank Garcia Jr. (TC).... 1150
- Comments on "Choked flow: A generalization of the concept and some experimental data." William C. Robison and James R. Nelson (TC)..... 1309
- Reply by authors to W. C. Robison and J. R. Nelson. Harold J. Hoge and Ronald A. Segars (TC)..... 1310
- Errata: "Hypersonic flow over a delta wing of moderate aspect ratio." N. D. Malmuth (TC)..... 1312
- Comment on "Choked flow: A generalization of the concept and some experimental data." H. Pearson (TC)..... 1502
- On the existence of a pressure plateau in pure laminar separated flows. J. Don Gray (TC)..... 1503
- Some comments about three-dimensional supersonic flow computations. G. Moretti (TC)..... 1695
- Comments on "Approximate solution of second-order boundary-layer equations." Howard E. Bethel (TC)..... 1882
- Reply by author to H. E. Bethel. Leroy Devan (TC)..... 1883
- Effect of wave reflections on the unsteady hypersonic flow over a wedge. K. J. Orlik-Ruckemann (TC)..... 1884
- Asymptotic Mach numbers in a real gas. Sidney A. Powers. (TC)..... 1886
- Comments on "Similar laminar boundary layer with large injection." Seymour I. Zeiberg (TC)..... 2080
- Errata: "Observations of turbulent reattachment behind an axisymmetric downstream-facing step in supersonic flow." Anatol Roshko and Gerald J. Thomke (TC)..... 2257

## GEOPHYSICS

- Interaction of the solar wind with the planets. Paul J. Coleman Jr. (SA)..... 4
- Errata: "Physics of meteor entry." Mary F. Romig (TC)..... 191
- Comments on "Physics of meteor entry." Franco Verniani (TC).... 383

## INSTRUMENTATION AND PHOTOGRAPHY

- An integrating-sphere reflectometer for the determination of absolute hemispherical spectral reflectance. Gene A. Zerlaut and A. C. Krupnick..... 1227
- A technique for micromanometry. H. J. Carper and R. A. Burton (TN)..... 549

## MATERIALS, METALLIC

- A review of the methods of measuring the strength of whiskers and their role in reinforcing ductile metal matrices. R. L. Mehan, W. H. Sutton, and J. A. Herzog (SA)..... 1889
- Prediction of compressive strength in uniaxial boron fiber-metal matrix composite materials. H. Schuerch..... 102
- Pyrolytic titanium diboride filaments for composites. Ralph L. Hough..... 107
- Compatibility of tantalum and columbium alloys with hydrogen. R. J. Walter and W. T. Chandler..... 302
- Development of oxidation resistant tungsten-base alloys. J. E. White..... 307
- Tungsten single crystal sheet. L. Raymond and F. R. Charvat..... 895
- Oxidation and mechanical performance of tungsten at high temperatures and high pressures. Galen A. Etemad..... 1543
- Comments on the work function of metal droplets. Keung P. Luke (TC)(SA)..... 382

## MATERIALS, NONMETALLIC

- Strength of laminated composite materials. Stephen W. Tsai and Victor D. Azzì..... 296
- A new class of hyperreutectic carbide composites. E. G. Kendall, J. I. Slaughter, and W. C. Riley..... 900
- Fundamental studies of the stability of thermal-control coatings. D. T. Lowrance and R. L. Cox..... 906
- Kinetic studies of high-temperature carbon-silica reactions in charred silica-reinforced phenolic resins. Jack L. Blumenthal, Myrri J. Santy, and Eugene A. Burns..... 1053
- Viscoelastic fiber reinforced materials. Zvi Hashin..... 1411
- Surface finishes for boron filaments. Douglas F. Starks, Ralph L. Hough, and Linwood C. Goff..... 1818
- Silicon carbide in ablative chars. Michael Ladacki (TN)..... 1445

## MATHEMATICS

- Sequential estimation when measurement function nonlinearity is comparable to measurement error. Walter F. Denham and Samuel Pines..... 1071
- On numerical optimization with state variable inequality constraints. Walter F. Denham (TN)..... 550
- Some aids to convergence from crude initial estimates. Richard A. Batchelder (TN)..... 1112
- Real solutions of sets of nonlinear equations. T. R. Kane. (TN).... 1880
- A modification of Potters' method for solving eigenvalue problems involving tridiagonal matrices. Robert E. Blum and Robert E. Fulton (TN)..... 2231

## NAVIGATION

- Neighboring optimal terminal control with discontinuous forcing functions. John E. McIntyre..... 141
- A technique for optimal final value control of powered flight trajectories. C. G. Pfeiffer..... 352
- On the motion within fluid gyroscopes. Martin Fiebig..... 667
- Optimum guidance for a low thrust interplanetary vehicle. J. V. Breakwell and H. E. Rauch..... 693
- Closed-loop near-optimum steering for a class of space missions. Frederick H. Martin..... 1920
- A method of orbital navigation using optical sightings to unknown landmarks. Gerald M. Levine..... 1928
- Stability analysis of multiloop, multirate sampled systems. Thomas C. Coffey and Ivan J. Williams..... 2178
- On the effect of aerodynamic and gravitational torques on the attitude stability of satellites. L. Meirovitch and F. B. Wallace Jr..... 2196
- Reciprocity theorem for systems with gyroscopic coupling. William W. Hooker and Elaine G. Zaslawsky (TN)..... 566
- A V-gyro pair as a dual-rate sensor. J. Knudson (TN)..... 1449
- Terminal guidance for continuous powered space vehicles. B. D. Tapley and W. T. Fowler (TN)..... 1683
- Contribution of earth oblateness to gravity torque on a satellite. Leo B. Schlegel (TN)..... 2075
- Comments on "Motion of re-entry vehicles during constant-altitude glide." Richard T. Theobald. (TC)..... 951
- Reply by author to R. T. Theobald. H. E. Wang (TC)..... 952

## NUCLEAR ENGINEERING

- A plasma-core nuclear rocket utilizing a magnetohydrodynamically-driven vortex. Kurt P. Johnson..... 635

## PHYSICS, GENERAL

- On the stability of a body with connected moving parts. Ralph Pringle Jr..... 1395
- Spectral normal emittance of single crystals. R. L. Dreshfield and R. D. House (TN)..... 371
- Coning motion of a spinning rigid body with slowly varying inertias. Bernard C. Sherman and John D. Graham (TN)..... 1467
- Comments on "Effect of microparticle impact on the optical properties of metals." Herman Mark and Michael J. Mirtich (TC).... 1499
- Reply by authors to H. Mark and M. J. Mirtich. R. E. Gannon, T. S. Lasso, C. H. Leigh, and S. J. Wolnik (TC)..... 1500

## PHYSICS, ATOMIC, MOLECULAR, AND NUCLEAR

- Free-molecular diffuser. Marshall H. Kaplan..... 675
- Yield and angular distribution of cesium sputtered copper using a radioactive tracer technique. N. Thomas Olson and Harold P. Smith Jr..... 916
- Atomic line radiation in equilibrium air. Robert M. Nerem (TN).... 1485
- Density measurements with electron beams. Stuart L. Petrie (TN).... 1679

## PHYSICS, PLASMA

- Performance characteristics of a magnetic annular arc. Richard M. Patrick and Arthur M. Schneiderman..... 283
- Electron density and temperature measurements in the exhaust of an MPD source. A. J. Kelly, N. M. Nerheim, and J. A. Gardner.... 291
- Effect of electrode size in MHD generators with segmented electrodes. Zdzislaw N. Celinski and Fred W. Fischer..... 421
- Energy efficiency trends in a coaxial gun plasma engine system. P. Gloersen, B. Gorowitz, and J. T. Kenney..... 436
- Theory of electrostatic double probe comprised of two parallel plates. Paul M. Chung and Victor D. Blankenship..... 442
- Langmuir probe diagnosis of turbulent plasmas. Anthony Demetriades and Ernest L. Doughman..... 451
- Direct current liquid-metal magnetohydrodynamic power generation. David G. Elliott..... 627
- Computer studies of plasma boundaries and lens effects created by immersed and withdrawn neutralizers. D. F. Brauch, O. Buneman, and R. P. Wadiwa..... 651
- Continuum radiation from partially ionized argon. Martin E. Barzelay..... 815
- Analytical and experimental performance of capacitor powered coaxial plasma guns. C. J. Michels, J. E. Heighway, and A. E. Johansen..... 823
- Quasi-steady-state pulsed plasma thrusters. D. E. T. F. Ashby, L. Liebing, A. V. Larson, and T. J. Gooding..... 831
- Cyclotron resonance thruster design techniques. David B. Miller and George W. Bethke..... 835
- Electrical conductivity of partially ionized gases. S. Schweitzer and M. Mitchner..... 1012
- Performance of an electrically triggered repetitively pulsed coaxial plasma engine. Bernard Gorowitz, Thomas W. Karras, and Per Gloersen..... 1027
- Acceleration instability of a vapor-liquid metal interface with longitudinal magnetic field. D. J. BenDaniel and H. Hurwitz Jr..... 1049
- Computation of electrostatic probe characteristics by quasilinearization. John R. Radbill..... 1195

- Thermionic energy conversion using barium plus cesium vapors. John Psarouthakis. 1201
- Diagnostic studies in a Hall accelerator at low exhaust pressure. P. Brockman, R. Hess, F. Bowen, and O. Jarrett. 1209
- Investigation of current-sheet microstructure. R. H. Lovberg. 1215
- Continuum radiated power for high-temperature air and its components. James C. Morris, Gale R. Bach, Rhoda U. Krey, Richard W. Liebermann, and Jerrold M. Yos. 1223
- Magnetohydrodynamic boundary layer between parallel streams of different magnetic fields and temperatures. H. P. Pao and C. C. Chang. 1313
- Neutral mass density measurements in a repetitively pulsed coaxial plasma accelerator. T. Karras, B. Gorowitz, and P. Gloersen. 1366
- Free-molecule Langmuir probe and its use in flowfield studies. Ain A. Sonin. 1588
- Growth rates for axial magneto-acoustic waves in a Hall generator. Edward V. Locke and James McCune. 1748
- Fluidmagnetic buoyancy. Ronald E. Rosenzweig. 1751
- Nonuniform conductivity MHD channel flow solution by B. G. Galerkin method. Arsev H. Eraslan. 1759
- A transient fiber optics probe for space resolved diagnostics of dense plasmas. Christo G. Stojanoff. 1766
- Segmented electrode losses in MHD generators with nonequilibrium ionization. Jack L. Kerrebrock. 1938
- Studies of highly radiative plasmas using the wall-stabilized pulsed arc discharge. Charles H. Church, Richard G. Schlecht, Irving Liberman, and Bruce W. Swanson. 1947
- Electrode effects in a sealed plasma. Randolph J. Wolf. 2155
- Comparison of numerical calculations and measured space-time resolved plasma properties of a dynamical theta pinch. Otto M. Frederich Jr. and Arwin A. Dougal. 2159
- Radial density and temperature profiles at the ion cyclotron wave resonance point. Roman Krawec. 2166
- Acceleration of magnetogasdynamic source flow through the sonic velocity. F. D. Hains (TN). 158
- Lorentz force maximization in continuous flow Hall current plasma accelerators. Roger P. Henry (TN). 165
- Prediction of mode transition in an arc with a transpiration cooled anode. Clifford J. Cremers and Richard C. Birkebak (TN). 167
- General study of plane steady flows in nonequilibrium magnetogasdynamics. O. P. Bhutani (TN). 367
- Magnetohydrodynamic natural convection in a cylinder. N. T. Dunwoody (TN). 368
- Measurement of the thermal radiation from an argon plasmajet. C. J. Cremers and E. Pfender (TN). 376
- Electron temperatures in several rf-generated plasmas. M. H. Clarkson, R. E. Field Jr. and D. R. Keefer (TN). 546
- Significance of nonequilibrium conductivity on plasma engine performance. M. M. Levoy and T. H. Dimmock (TN). 553
- Hall-current generator characteristics at constant electron temperature. H. E. Brandmaier (TN). 563
- End effects in a steady-state magnetohydrodynamic  $J \times B$  accelerator. K. E. Tempelmeyer (TN). 723
- Ablating shield for plasma arc probe. R. G. Heidebach, W. H. Avery, and E. A. Bunt (TN). 751
- Self-excited explosive-driven MHD generator. A. L. Loeffler Jr., L. Aronowitz, and W. B. Ericson (TN). 942
- Spherical blast waves in a weak dipole magnetic field. C. P. Yu and P. S. Lykoudis (TN). 945
- Measurement of the velocity distribution in a plasmajet. Chad F. Gottschlich, John A. Enright, and Frederick C. Cadec (TN). 1085
- Flow transition phenomena in a subsonic plasmajet. Frank Incropera and George Leppert (TN). 1087
- Analytical solution for minimum length MHD accelerator with constant pressure. Vittorio Fiorini (TN). 1098
- Magnetohydrodynamic potential flow over a cylinder with an axial magnetic field. W. F. Hughes (TN). 1104
- Maxwellization of electrons in a low-voltage, atmospheric pressure gas discharge. Frederic A. Lyman (TN). 1128
- Velocity measurement by Doppler effect. Boye Ahlborn and A. Johannes Barnard (TN). 1136
- A modified Pohlhausen velocity profile for MHD boundary-layer problems. William H. Heiser and Walter J. Bornhorst (TN). 1139
- Hydromagnetic free convection flows from a horizontal plate. A. S. Gupta (TN). 1439
- Note on the application of a moment method to heat conduction in rarefied gases between concentric spheres. George S. Springer and Shoung Fun Wan (TN). 1441
- Results of large vacuum facility tests of an MPD arc thruster. Robert E. Jones (TN). 1455
- Approximation to the electrical conductivity of a magnetically balanced arc in transverse argon flow. T. W. Myers (TN). 1459
- Nonisentropic two-dimensional MHD flow. Roy M. Gunderesen (TN). 1474
- Variable collision cross-section effects on electrical conductivity. Samuel V. Shelton and Walter O. Carlson (TN). 1676
- Stagnation point Langmuir probe measurements in an argon arc jet. Keith E. Starner (TN). 1685
- Stagnation pressure measurement in a current-carrying plasma. P. Barkan and A. M. Whitman (TN). 1691
- Optimization of the thermal efficiency of the magnetic annular arc. A. M. Schneiderman and R. M. Patrick (TN). 1836
- Effects of a transverse magnetic field and spanwise electric field on the boundary layer of a conducting fluid. N. A. Jaffe (TN). 1843
- Probe measurements in an electrodeless discharge. D. R. Keefer, M. H. Clarkson, and B. E. Mathews (TN). 1850
- Interaction of high-density plasma with hot cathode. Vijay K. Rohatgi (TN). 1852
- Experimental study of a traveling-wave accelerator. G. R. Seemann, J. A. Thornton, and A. S. Penfold (TN). 1870
- Electrical conductivity measurements in a Faraday accelerator. Raymond Goldstein, J. Kenneth Richmond, and Gordon C. Oates (TN). 2043
- Electrode current saturation in MHD ducts. J. F. Armstrong, D. W. George, and H. K. Messler (TN). 2061
- Magnetoplastic effect in non-Newtonian fluids. Rodolfo Pallabazzer (TN). 2064
- MHD accelerator performance for specified interaction parameter. Charles H. Marston (TN). 2078
- On the stability of an argon plasmajet. Brian D. Adcock (TN). 2249
- Comment on "Steadiness of a plasmajet." P. G. Simpkins (TC). 190
- Reply by authors to P. G. Simpkins. E. Pfender and C. J. Cremers (TC). 191
- Equilibrium properties of argon. Brian D. Adcock (TC). 384
- Comments on "Transport properties of hydrogen." R. S. Devoto (TC). 1149
- Errata: "Theory of electrostatic double probe comprised of two parallel plates." Paul M. Chung and Victor D. Blankenship (TC). 1312
- Comment on "Validity of integral methods in MHD boundary-layer analysis." Pau-Chang Lu (TC). 1497
- Errata: "Electrical conductivity of partially ionized gases." S. Schweitzer and M. Mitchner (TC). 1888
- Errata: "Thermionic energy conversion using barium plus cesium vapors." John Psarouthakis (TC). 2080

## PROPELLANTS

- Theory of ignition of solid propellants. E. W. Price, H. H. Bradley Jr., G. L. Dehority, and M. M. Ibricic (SA). 1153
- A theoretical model for predicting aluminum oxide particle size distributions in rocket exhausts. Harvey L. Fein. 92
- Thermomechanical response studies of solid propellants subjected to cyclic and random loading. R. A. Schapery and D. E. Cantey. 255
- Shock tube ignition delay studies of endothermic fuels. Robert D. Hawthorn and Alan C. Nixon. 513
- Sensitivity of composite and double-base propellants to shock waves. Nathaniel L. Coleburn. 521
- Some observations on the combustion of  $N_2H_4$  droplets. B. R. Lawver. 659
- Thermal diffusivity of ammonium perchlorate. Willis A. Rosser Jr., S. Henry Inami, and Henry Wise. 663
- Regression rates of metalized hybrid fuel systems. L. D. Smoot and C. F. Price. 910
- Relationship between filler distribution and uniaxial rupture of composite solid propellants. Norman Fishman. 1044
- Studies of ionization phenomena associated with solid-propellant rockets. E. L. Capener, J. B. Chown, L. A. Dickinson, and J. E. Nanevics. 1349
- Theory of propellant ignition by heterogeneous reaction. F. A. Williams. 1354
- Ignition of ammonium perchlorate composite propellants by convective heating. J. A. Keller, A. D. Baer, and N. W. Ryan. 1358
- Thermal conductivity: A parameter in solid propellant burning. M. Imber. 1610
- Ignition of simulated propellants based on ammonium perchlorate. W. A. Rosser, N. Fishman, and H. Wise. 1615
- Nonacoustic instability of composite propellant combustion. M. W. Beckstead, N. W. Ryan, and A. D. Baer. 1622
- A model of composite propellant combustion including surface heterogeneity and heat generation. Clarke E. Hermance. 1629
- Experiments on hydrogen recombination in nozzle flows for the  $H_2/F_2$  system. W. C. Kuby (TN). 160
- Finite rate evaporation of hydrogen in air. Raymond Edelman and Harold Rosenbaum (TN). 163
- Gas evolution from a solid rocket propellant during depressurization to produce a quench. Edward A. Fletcher and Gene W. Bunde (TN). 181
- Experimental investigation of bipropellant arc. H. O. Noeske and J. C. Glass (TN). 716
- Explosion of propellants. Robert F. Fletcher, Dal Gerneth, and Clark Goodman (TN). 755
- Shock wave interaction with a burning solid propellant. Vito D. Agosta (TN). 934
- Mechanism of combustion of liquid rocket propellants: Aliphatic alcohols and mixed acid. R. P. Rastogi and K. Kishore (TN). 1083
- Gas evolution from solid propellants during pressure decays. Edward A. Fletcher and Tsuyoshi Hiroki (TN). 2222
- Ignition of composite propellant fuels by perchloric acid vapor. G. S. Pearson and D. Sutton (TC). 954
- Comment on "Regression rates of metalized hybrid fuel systems." Gerald A. Marxman (TC). 956
- Errata: "A theoretical model for predicting aluminum oxide particle size distributions in rocket exhausts." Harvey L. Fein (TC). 960
- Erratum: "Relationship between filler distribution and uniaxial rupture of composite solid propellants." Norman Fishman (TC). 1888

## PROPULSION SYSTEMS

- Study of the highly underexpanded sonic jet. S. Crist, P. M. Sherman, and D. R. Glass. 68
- Theoretical considerations relating to the effect of injector design on unstable burning of liquid propellant rocket motors. F. T. McClure, R. H. Cantrell, and R. W. Hart. 84
- Performance measurements on a pulsed ablating thruster. R. Goldstein and F. N. Mastrup. 99

- Influence of residual gas atmosphere in space chambers on neutral efflux and critical temperature of tungsten ionizers. O. K. Hummann, D. M. Jamba, and D. R. Denison..... 273
- Influence of combustion parameters on instability in solid propellant motors: Part I. Development of model and linear analysis. John C. Friedly and Eugene E. Petersen..... 1604
- Correlation of performance of conical and contoured nozzles for gas-particle flow. S. A. Lorenc and J. D. Hoffman (TN)..... 169
- Sensitivity of a downstream Langmuir probe to rocket chamber conditions. Daniel E. Rosner (TN)..... 706
- Wave slope-gas dynamic interactions in liquid rockets. Sanford S. Hammer and Vito D. Agosta (TN)..... 753
- Electron-magnetic-field interactions in the electron bombardment heated thruster. K. E. Starnner and W. R. Grabowsky (TN)..... 1090
- Remarks on acoustic oscillations in a solid propellant rocket. F. E. C. Culick (TN)..... 1120
- Shock propagation in solid-propellant rocket combustors. W. G. Brownlee and G. H. Kimbell (TN)..... 1132
- Thrust magnitude control for a solid rocket by injection at the throat. A. J. Ormsbee, R. E. Gardner, N. Rott, and R. H. Nunn (TN)..... 1424
- Effect of the transverse velocity component on the nonlinear behavior of short nozzles. L. Crocco and W. A. Sirignano (TN)..... 1428
- Rotational axisymmetric mean flow and damping of acoustic waves in a solid propellant rocket. F. E. C. Culick (TN)..... 1462
- A mechanism for particle growth in a rocket nozzle. C. T. Crowe and P. G. Willoughby (TN)..... 1677
- Comment on "Perturbation solutions for low-thrust rocket trajectories." M. J. Cohen (TC)..... 573

## SPACE RADIATION

- Electron impact cross sections for aeronomy. A. E. S. Green (SA)..... 769
- Some techniques applicable to the shielding of nuclear particles from space. M. J. Barrett..... 9
- Experimental measurements of nonequilibrium and equilibrium radiation from planetary atmospheres. G. M. Thomas and W. A. Menard..... 227
- Magnetogasdynamic boundary condition for a self-consistent solution to the closed magnetopause. Murray Dryer and Rolf Faye-Petersen..... 246
- Forbidden regions produced by two parallel dipoles. S. H. Levine, A. Bhattacharjee, and R. Lepper..... 654
- Alfvén waves and induction drag on long cylindrical satellites. C. K. Chu and R. A. Gross..... 2209
- Earth as an occulting disk for study of solar EUV emission heights. S. O. Kastner and C. L. Wolff (TN)..... 1096
- Comment on "Geomagnetically trapped radiation." Philippe A. Clavier (TC)..... 384

## SPACE SCIENCES

- Optimum conical bodies for grazing hyperbolic entry. Alvin Seiff and Michael E. Tauber..... 61
- Nonplanar earth-to-moon trajectories in the restricted three-body problem. P. A. Lagerstrom and J. Kevorkian..... 149
- Asymptotically optimum two-impulse transfer from lunar orbit. P. Gunther..... 346
- TELSTAR orbit prediction method-accuracy comparison with other orbit prediction methods. Anthony G. Lubowe..... 361
- Integration with universal variables. Edward T. Pitkin..... 531
- Linearized solutions for a circular orbit perturbed by tesseral harmonics. Charles Sheffield..... 688
- Some considerations for a simplified orbiting general relativity experiment. Ronald D. Palamara..... 1036
- Optimal free-space fixed-thrust trajectories using impulsive trajectories as starting iteratives. Morris Handelsman..... 1077
- Lunar satellite orbit determination by a classical binary star method. Richard E. Bateman, Joseph N. Benesra, and Frank J. Placek..... 1287
- Choosing trajectory parameters to maximize mission probability of success. Walter F. Denham and John J. Mohan..... 1293
- Necessary conditions for optimal single impulse transfer. H. Gardner Moyer..... 1405
- An analytical study of the impulsive approximation. Howard M. Robbins..... 1417
- A computational method for the optimization of multistage ballistic systems. M. W. Alford and C. W. Lear..... 1668
- Effect on surface thermal properties of calibrated exposure to micro-meteoroid environment. Herman Mark, Ralph D. Sommers, and Michael J. Mirtich..... 1811
- Ground tracks of earth-period (24-hr) satellites. Peter Bielkiewicz..... 2190
- Ascent or descent from satellite orbit by low thrust. Yun Y. Shi and Martin C. Eckstein..... 2203
- Selection of data weights for determining orbits with biased sensors. George H. Myers (TN)..... 705
- Family of consecutive collision earth-to-moon trajectories. David A. Pierce and E. Myles Standish Jr. (TN)..... 709
- Representation of the Lagrangian multipliers for coast periods of optimum trajectories. Peter R. Hempel (TN)..... 729
- Determination of mean elements for Vinti's satellite theory. N. L. Bonavito (TN)..... 740
- Non-two-body reference orbit for Encke's method. P. R. Escobal (TN)..... 930
- Matching planetocentric and heliocentric low-acceleration trajectories. Sam W. Wilson Jr. and John J. Miller (TN)..... 932
- On time-dependent coverage areas of comsats in elliptic orbits. Iwao Sugai (TN)..... 1108

- Effects of eddy-current damping on satellite attitude stability. Peter W. Likins and Richard L. Columbus (TN)..... 1123
- Use of  $K$ -orthogonality for the inversion of state transition matrices. W. R. Davis (TN)..... 1125
- Approximate atmospheric entry trajectories on a cylindrical planet. Paul D. Arthur and Bruce E. Baxter (TN)..... 1436
- Gravity torque effects. T. R. Kane and T. R. Robe (TN)..... 1454
- An asymptotic solution for optimum power limited orbit transfer. T. N. Edelbaum (TN)..... 1491
- Comments on "An analytic solution for entry into planetary atmospheres." Ali Hasan Nayfeh (TC)..... 758
- Reply by author to A. H. Nayfeh. S. J. Citron (TC)..... 758
- Equations of motion for the variable mass system. William T. Thomson (TC)..... 766
- Errata: "Nonplanar earth-to-moon trajectories in the restricted three-body problem." P. A. Lagerstrom and J. Kevorkian (TC)..... 960
- More results on solar influenced libration point motion. Walter T. Feldt and Yechiel Shulman. (TC)..... 1501
- Errata: "Extension of second-order theory of entry mechanics to oscillatory entry solutions." W. H. T. Loh (TC)..... 1696

## SPACE VEHICLES

- Perturbations of repeating groundtrack satellites by tesseral harmonics in the gravitational potential. M. P. Francis, G. S. Gedeon, and B. C. Douglas..... 1281
- Effects of energy dissipation on a spinning satellite. T. R. Kane and P. M. Barba..... 1391

## STRUCTURAL MECHANICS

- A survey of some buckling problems. Bernard Budiansky and John W. Hutchinson (SA)..... 1505
- Comparative efficiencies of aerospace pressure vessel design concepts. George Gerard (SA)..... 2081
- A direct numerical analysis method for cylindrical and spherical elastic waves. Pravin K. Mehta and Norman Davids..... 112
- Thermoelectric analysis of a solid cone. Donald E. Johnson..... 118
- Postbuckling equilibrium of axially compressed circular cylindrical shells. Nicholas J. Hoff, Wayne A. Madsen, and J. Mayers..... 126
- Influence of edge conditions on the stability of axially compressed cylindrical shells. B. O. Almroth..... 134
- Standing waves in a viscoelastic cylinder case-bonded to a thin shell. L. A. Henry and A. M. Freudenthal..... 313
- Effect of axisymmetric imperfections on the buckling of spherical caps under uniform pressure. Gaylen A. Thurston and Francis A. Penning..... 319
- Buckling of clamped conical shells under external pressure. Josef Singer..... 328
- Pressurized oval cylinders with closely spaced rings. William P. Vafakos, Neil Nissel, and Joseph Kempner..... 338
- Further comparison of elasticity and shell theory solutions. Jerome M. Klosner and Howard S. Levine..... 467
- Structural efficiency of orthotropic cylindrical shells subjected to axial compression. Norris F. Dow and B. Walter Rosen..... 481
- Dynamic response of a cylindrical shell: Two numerical methods. Donald E. Johnson and Robert Greif..... 486
- Dynamic stability of cylindrical shells. M. P. Bieniek, T. C. Fan, and L. M. Lackman..... 495
- Thermally induced vibrations of thin nonshallow spherical shells. H. Kraus..... 500
- Dynamic buckling estimates. John W. Hutchinson and Bernard Budiansky..... 525
- Supersonic flutter of circular cylindrical shells subjected to internal pressure and axial compression. Mervyn D. Olson and Y. C. Fung..... 858
- Oscillatory pressures in an idealized boundary layer with application to cylinder flutter. William J. Anderson..... 865
- Influence of stiffener eccentricity and end moment on stability of cylinders in compression. C. Stuhlman, A. DeLuzio, and B. Almroth..... 872
- On dynamic snap buckling of shallow arches. John S. Humphreys..... 878
- Static and dynamic effects of eccentric stiffening of plates and cylindrical shells. John A. McElman, Martin M. Mikulas Jr., and Manuel Stein..... 887
- Effect of heterogeneity on the stability of composite cylindrical shells under axial compression. James Tasi..... 1058
- Vibrations of orthotropic cylindrical sandwich shells under initial stress. E. H. Baker and G. Herrmann..... 1063
- Axial shear vibrations of a cylinder of decreasing thickness. J. D. Achenbach..... 1233
- Role of boundary conditions on flutter of orthotropic panels. Herman L. Bohon and Melvin S. Anderson..... 1241
- Snapping of a shallow sinusoidal arch under a step pressure load. Malcolm H. Lock..... 1249
- Theoretical considerations of panel flutter at high supersonic Mach numbers. John Dugundji..... 1257
- Nonlinear oscillations of a fluttering plate. Earl H. Dowell..... 1267
- Destabilizing effect of velocity-dependent forces in nonconservative continuous systems. S. Nemat-Nasser, S. N. Prasad, and G. Herrmann..... 1276
- Flutter of infinitely long plates and shells. Part I: Plate. Earl H. Dowell..... 1370
- Axial impact of an elastic right conical membrane shell. Harvey M. Berkowitz and Hans H. Bleich..... 1378
- On panel vibration damping due to structural joints. E. E. Ungar and J. R. Carbonell..... 1385

- Flutter of infinitely long plates and shells. Part II: Cylindrical shell. Earl H. Dowell..... 1510
- Direct stiffness method analysis of shells of revolution utilizing curved elements. R. E. Jones and D. R. Strome..... 1519
- Toward a new snap-through buckling criterion for axially compressed circular cylindrical shells. Robert M. Jones..... 1526
- Application of generalized constraints in the stiffness method of structural analysis. Bruce E. Greene..... 1531
- Elastic properties of fiber reinforced composite materials. J. M. Whitney and M. B. Riley..... 1537
- Effect of spacewise variations in a random load field on the response of a linear system. Ferdinand P. Beer and Robert J. Ravera..... 1651
- Nonlinear mechanical model for the description of propellant sloshing. Helmut F. Bauer..... 1662
- A mathematical model of the cyclic stress-strain relationship. Wilhelm F. Knackstedt..... 1822
- General instability of orthotropically stiffened cylinders under axial compression. Roger Milligan, George Gerard, and C. Lakshminathan..... 1906
- Stress analysis for elastic response of physically nonlinear solid propellants. Karl S. Pister and Roger J. Evans..... 1914
- Comparison of elasticity and shell theory solutions for long circular cylindrical shells. K. T. Sundara Raja Iyengar and C. V. Yogananda..... 2090
- Pseudononlinear bending analysis of an orthotropic multilayer shell structure. P. E. Wilson, P. W. Rogers, S. N. Dharmarajan, and E. M. Slick..... 2096
- Comparison and evaluation of stiffness matrices. J. Khanna and R. F. Hooley..... 2105
- On the parametric excitation of a viscoelastic column. Karl Kent Stevens..... 2111
- Equivalent vibrating systems. J. Genin, A. L. Sweet, and T. C. Cannon (TN)..... 171
- Measurement of initial geometrical imperfections of cylindrical shells. Anthony P. Coppa (TN)..... 172
- A stability criterion for panel flutter via the second method of Liapunov. P. C. Parks (TN)..... 175
- On a Green's function for plate bending. Richard Roberts (TN)..... 178
- Exact plane strain vibrations of composite hollow cylinders: comparison with approximate theories. T. Karlsson and R. E. Ball (TN)..... 179
- Axially symmetric buckling of a compressed cylindrical shell and an integral relation. Steven C. Batterman (TN)..... 186
- On material strengths of the hypervelocity impact problem. William P. Dunn (TN)..... 535
- Spherically blunted cone pressure distributions. E. F. Blick and J. E. Francis (TN)..... 547
- Stability of axially compressed core-filled cylinders. T. Myint-U (TN)..... 552
- Prediction of plate vibrations using a consistent mass matrix. Kanwar K. Kapur (TN)..... 565
- A solution to the Timoshenko beam under a moving force. Sing-chih Tang (TN)..... 711
- Influence of plasticity correction factor in minimum weight analysis. Leslie M. Lackman and Robert M. Ault (TN)..... 713
- Effects of edge restraint on the stability of spherical caps. Leon Ru-Liang Wang (TN)..... 718
- On the adequacy of energy criteria for dynamic buckling of arches. John S. Humphreys (TN)..... 921
- Stabilization of unstable two-point boundary value problems. P. F. Jordan and P. E. Shelley (TN)..... 923
- Experiments on dynamic plastic deformation of shallow circular arches. John S. Humphreys (TN)..... 926
- Equivalent mass matrices for rectangular plates in bending. J. S. Przemieniecki (TN)..... 949
- Computation of stress resultants from the element stiffness matrices. James A. Stricklin (TN)..... 1095
- Inertia effects in the dynamic response of a cylindrical shell. Robert Greif (TN)..... 1105
- An asymptotic analysis for large deflections of pressurized shallow spherical membrane shells. John N. Rossettos (TN)..... 1121
- Free vibrations of rocket nozzles. R. A. Newton (TN)..... 1303
- Elastic stability of cylindrical shell reinforced by one or two frames and subjected to external radial pressure. R. H. MacNeal, A. F. Winemiller, and J. A. Bailie (TN)..... 1431
- An analog study of the thermal buckling behavior of thin cylindrical shells. Bernard Ross (TN)..... 1437
- A proof of the stability of the Houbolt method. D. E. Johnson (TN)..... 1450
- Influence coefficients for externally pressurized spherical shells. David Bushnell (TN)..... 1472
- Dynamic buckling of cylinders under axial shock tube loading. John S. Humphreys and Charles Sve (TN)..... 1477
- Calculation of geometric stiffness matrices for complex structures. J. T. Oden (TN)..... 1480
- Eccentric discontinuities in unsymmetrically loaded shells of revolution. Ralph M. Verette and R. B. Matthiesen (TN)..... 1680
- Analysis of short cylindrical shells of variable wall thickness. W. E. Jahsan and O. Hoffman (TN)..... 1686
- Experimental observations of optical radiation associated with hypervelocity impact. B. Jean (TN)..... 1854
- Buckling of axially compressed cylindrical shells with ring-stiffened edges. Gerald A. Cohen (TN)..... 1859
- A simple calibration technique for skin friction balances. J. W. Headley (TN)..... 1862
- Steady-state response of beams supported on nonlinear springs. A. V. Srinivasan (TN)..... 1862
- Target strength and hypervelocity impact. D. R. Christman (TN)..... 1872
- Resonance of rods, strings, and torsion members due to cyclic moving loads. P. G. Kessel and A. L. Schlack (TN)..... 1879
- Statistical dependence effect of normal mode response. Robert E. Davis (TN)..... 2033
- Engineering applications of numerical integration in stiffness methods. Bruce M. Irons (TN)..... 2035
- Dynamic stresses in a thick-walled spherical shell of Voigt material. L. D. Hankins (TN)..... 2038
- Numerical solutions of nonlinear equations for shells of revolution. John Mescall (TN)..... 2041
- Nonlinear influence coefficients for a spherical shell with pressure loading. Peter VanDyke (TN)..... 2045
- Natural vibrations of deep spherical shells. Dharendra R. Navaratna (TN)..... 2056
- Computation of stress resultants in finite element analysis. Dharendra R. Navaratna (TN)..... 2058
- Further study on the dynamic stability of cylindrical shells. T. C. Fan (TN)..... 2063
- Improvements on the analysis of shells of revolution by the matrix displacement method. James A. Stricklin, Dharendra R. Navaratna, and Theodore H. H. Pian (TN)..... 2069
- A failure law for filamentary composites. Herbert Becker and George Gerard (TN)..... 2218
- Adjoint systems in nonconservative problems of elastic stability. S. Nemat-Nasser and G. Herrmann (TN)..... 2221
- Thermal excitations of thin elastic shells. E. Heer (TN)..... 2234
- On bending of orthotropic sandwich plates. C. E. S. Ueng and Y. J. Lin (TN)..... 2239
- Tension shell as a membrane. Peter VanDyke (TN)..... 2241
- Mohr's circle as a phase transformation. B. Paul..... 2253
- Comment on "Distributed mass matrix for plate element bending." Bruce Irons (TC)..... 189
- Comment on "General instability and optimum design of grid-stiffened spherical domes." Kenneth P. Buchert (TC)..... 379
- Reply by authors to K. P. Buchert. Robert F. Crawford and David B. Schwartz (TC)..... 379
- Comments on "In-plane vibration of spinning disks." J. G. Simmonds (TC)..... 380
- Reply by author to J. G. Simmonds. Ronald L. Huston (TC)..... 380
- Note on the vibrational characteristics of thin-walled shells. Leslie R. Koval (TC)..... 571
- Comments on "Stresses about a circular hole in a cylindrical shell." Aleksander Kornecki (TC)..... 765
- Reply by author to A. Kornecki. Peter VanDyke (TC)..... 765
- Addendum: "Coupled panel/cavity vibrations." D. J. Ketter (TC)..... 768
- Comment on "Computer analysis of asymmetric free vibrations of ring-stiffened orthotropic shells of revolution." Edward W. Ross Jr. (TC)..... 1310
- Reply by author to E. W. Ross Jr. Gerald A. Cohen (TC)..... 1312
- Comments on the analysis of free vibration of rotationally symmetric shells. Arturs Kalnins (TC)..... 1497
- Reply by author to A. Kalnins. Gerald A. Cohen (TC)..... 1498
- Compatibility equations for arbitrary orthogonal curvilinear coordinates. I. S. Tuba (TC)..... 1695
- Conservativeness of a normal pressure field acting on a shell. Gerald A. Cohen (TC)..... 1886
- Comment on "On dynamic snap buckling of shallow arches." E. H. Dowell (TC)..... 1887
- Reply by author to E. H. Dowell. John S. Humphreys (TC)..... 1888
- Effect of modes on plastic buckling of compressed cylindrical shells. Steven C. Batterman and Lawrence H. N. Lee (TC)..... 2255
- Errata: "Effect of heterogeneity on the stability of composite cylindrical shells under axial compression." James Tasi (TC)..... 2257

## THERMODYNAMICS AND COMBUSTION

- Effects of dissociation energy and vibrational relaxation on heat transfer. Henry Tong..... 14
- Effect of injection distribution on combustion stability. F. H. Reardon, J. M. McBride, and A. J. Smith Jr..... 506
- Radiant heat-transfer analysis of isothermal diathermanous coatings on a conductor. John E. Francis and Tom J. Love Jr..... 643
- Energetics and chemical kinetics of polystyrene surface degradation in inert and chemically reactive environments. James G. Hansel and Robert F. McAlevy, III..... 841
- Influence of a transverse magnetic field on forced convection liquid metal heat transfer. R. A. Gardner, K. L. Uherka, and P. S. Lykoudis..... 848
- Ablation in a high shear environment. Kenneth W. Graves..... 853
- Hypersonic turbulent transpiration cooling including downstream effects. Lawrence W. Woodruff and George C. Lorenz..... 969
- Film cooling with air and helium injection through a rearward-facing slot into a supersonic air flow. R. J. Goldstein, E. R. G. Eckert, F. K. Tsoi, and A. Haji-Sheikh..... 981
- Laminar arcjet mixing and heat transfer: Theory and experiments. Jerry Grey, Martin P. Sherman, Peter M. Williams, and David B. Fradkin..... 986
- Nonequilibrium anomalies in the development of diffusion flames. Paul M. Chung, F. E. Fendell, and J. F. Holt..... 1020
- Temperature distribution within a particle during evaporation. Jean M. Parks, C. M. Ablow, and Henry Wise..... 1032
- Approximate closed solutions for detonation parameters in condensed explosives. Morton H. Friedman..... 1182
- Pressure wave generation in particle-fueled combustion systems: I. Parametric study. C. W. Busch, A. J. Laderman, and A. K. Oppenheim..... 1638
- A theory for ignition and deflagration of fuel drops. Richard L. Peskin and Henry Wise..... 1646
- Heat transfer in nonequilibrium dissociated hypersonic flow with surface catalysis and second-order effects. William H. Carden..... 1704
- Radiative cooling in transparent shock layers of wedges and cones. D. B. Olf..... 1734

- Formation of detonation waves in flowing hydrogen-oxygen and methane-oxygen mixtures. Loren E. Bollinger, Gary C. Smith, Frederick J. Tomazic, and Rudolph Edse. 1773
- Detonability of hydrogen-oxygen mixtures in large vessels at low initial pressures. A. J. Laderman. 1784
- Protection of graphite from oxidation at 2100°C. J. M. Criscione, H. F. Volk, and A. W. Smith. 1791
- Heat of pyrolysis of resin in silica-phenolic ablator. Michael Ladacki, Janet V. Hamilton, and Samuel N. Cohn. 1798
- Bidirectional reflectance characteristics of rough, sintered-metal, and wire-screen surface systems. L. M. Herold and D. K. Edwards. 1802
- Oxidation and ablation characteristics of tantalum in a hyperthermal environment. Billy W. Marshall. 1899
- Influence of combustion parameters on instability in solid propellant motors. Part II: Nonlinear analysis. John C. Friedly and Eugene E. Petersen. 1932
- Boundary-layer turbulence measurements with mass addition and combustion. C. E. Wooldridge and R. J. Muzzy. 2009
- Theoretical and experimental investigation of the compressible free mixing of two dissimilar gases. Coleman duP. Donaldson and K. Evan Gray. 2017
- An aerothermochemical analysis of solid propellant combustion. Frederick L. Schuyler and T. Paul Torda. 2171
- Measurement of the heat transfer to a two-dimensional hypersonic inlet ramp. Widen Tabakoff and James D. McDonel (TN). 153
- Heat capacity and the Lewis number of a reacting gas. Roger A. Svehla and Richard S. Brokaw (TN). 182
- Transmission of detonation waves through orifices. Benedict H. K. Lee, John H. Lee, and Romas Knystautas (TN). 365
- Blunt body experiments with central injection. A. F. Gollnick Jr. (TN). 374
- An approximate analysis of thermal conduction and radiative transport in the stagnation-point shock layer. Robert M. Neren (TN). 539
- Radiative heat-flux potential for a nongrey gas. S. C. Traugott (TN). 541
- Effect of variations in the coefficient of thermal expansion upon thermal stress. John Minardi (TN). 542
- Radiation from conical surfaces with nonuniform radiosity. R. P. Bobco (TN). 544
- Reduction of data from thin-film heat-transfer gages: A concise numerical technique. W. J. Cook and E. J. Felderman (TN). 561
- Interpretation of recovery-temperature measurements at low Reynolds numbers. C. Forbes Dewey Jr. (TN). 567
- Influence of calorimeter surface treatment on heat-transfer measurements in arc-heated test streams. Ernest L. Winkler and Robert E. Sheldahl (TN). 715
- A note concerning the effective emittance of certain grooved surfaces. Gary A. McCue (TN). 721
- Convective heat transfer in planetary gases. Joseph G. Marvin and George S. Deiwert (TN). 727
- Perturbation solutions in the differential analysis of radiation interactions with conduction and convection. C. L. Tien and M. M. Abu-Romia (TN). 732
- Shock-flame interaction in a cylindrical chamber. John H. Lee, Benedict H. K. Lee, and Romas Knystautas (TN). 736
- Transpiration cooling in an arc-jet environment. L. Wolf Jr., H. J. Obrenski, and W. J. Christian (TN). 747
- Hybrid rocket combustion regression rate model. Eugene Miller (TN). 752
- Heat transfer to particles in shock-heated gases. Michael Arthur Nettleton (TN). 939
- Use of the method of integral relations for the determination of the convective heat flux to a re-entry body. W. C. Kuby (TN). 947
- Transfer behind detonations in H<sub>2</sub>-O<sub>2</sub> mixtures. M. Sichel and T. S. David (TN). 1089
- Effect of nonperfect isolation on the temperature of metal surfaces on satellites. R. D. Sommers and H. Mark (TN). 1092
- Effect of water vapor on H<sub>2</sub>-O<sub>2</sub> detonations. B. F. Kerkam and E. K. Dahora (TN). 1101
- Criteria for self-similar solutions to radiative flow. James J. Der (TN). 1107
- Turbulent heat-transfer and skin-friction measurements on a porous cone with air injection at high Mach numbers. Richard P. Fogaroli and Alan R. Saydah (TN). 1116
- Radiative transfer for parallel streams of radiating gases. Y. C. Whang (TN). 1451
- Measurement of the thermal parameter  $(ck)^{1/2}$  for clear fused quartz. Leonard Bogdan (TN). 1477
- Radiative cooling of a uniform gas flow. Richard H. C. Lee (TN). 1846
- Approximate solution to the flat plate thermometer problem. John A. Fillo (TN). 1876
- Mass effect on blast wave theory. Tatsuo Yamanaka (TN). 2047
- Blunt cone laminar friction drag. Ivan Stern (TN). 2051
- Surface distortion of the molten layer in the axisymmetric stagnation region. Yasuhiko Aihara (TN). 2068
- Some observations on reduction of turbulent boundary-layer heat transfer in nozzles. L. H. Back, P. F. Massier, and R. F. Cuffel (TN). 2226
- An integral approach to transient charring ablator problems. D. B. Adarkar and L. B. Hartsook (TN). 2246
- Comments on "Simplified solutions for ablation in a finite slab." Andrzej Wortman (TC). 760
- Reply by author to A. Wortman. Ning Hsing Chen (TC). 760
- Comment on "Review of theoretical investigations on effect of heat transfer on laminar separation." K. O. W. Ball (TC). 761
- Comment on "Prediction of adiabatic wall temperatures in film-cooling systems." Geoffrey J. Sturgess (TC). 763
- A note of caution on the use of catalytic probes. W. P. Thompson and R. A. Hartunian (TC). 957
- Comment on "Transport properties of hydrogen." S. B. Schneiderman (TC). 959
- Comments on "New methods in heat flow analysis." D. J. Johns (TC). 1151
- Comment on "Simplified solutions for ablation in a finite slab." D. B. Adarkar (TC). 1495
- Reply by author to D. B. Adarkar. Ning Hsing Chen (TC). 1496
- Comments on heat induced vibrations of elastic beams, plates, and shells. William C. Lyons (TC). 1502
- Erratum: "Ablation in a high shear environment." Kenneth W. Graves (TC). 1696
- Comments on "Criteria for self-similar solutions to radiative flow." K. C. Wang (TC). 1887

## GENERAL

- On the fundamental frequency of a four point-supported square elastic plate. W. K. Tso (TN). 733

